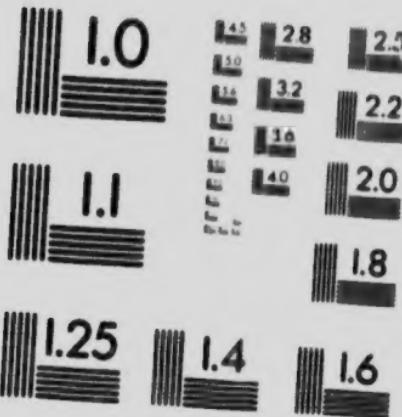


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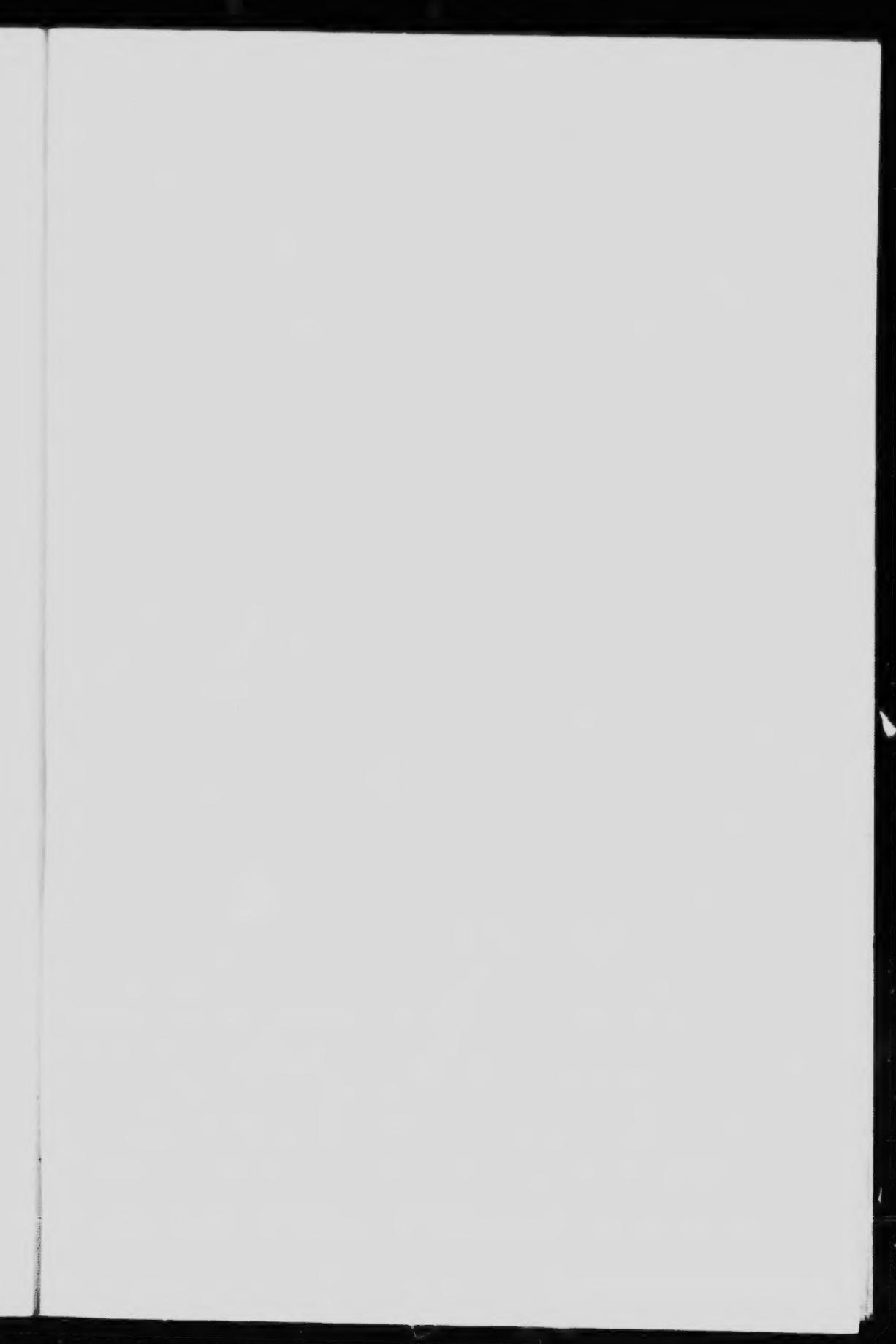
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## Commission of Conservation

*Constituted under "The Conservation Act," 8-9 Edward VII, Chap. 27, 1909, and amending  
Act, 9-10 Edward VII, Chap. 42, 1910, and 3-4 George V, Chap. 12, 1913.*

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MR. JAMES WHITE

Commission of Conservation  
Canada

COMMITTEE ON WATERS AND  
WATER-POWERS

WATER WORKS  
AND  
SEWERAGE SYSTEMS  
OF  
CANADA

Compiled by  
LEO. G. DENIS, B.Sc.

*Hydro-Electric Engineer*  
*Commission of Conservation*

1918  
PRINTED BY THE MORTIMER CO.  
OTTAWA

**Committee on Waters and  
Water-Powers**

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TO FIELD MARSHAL HIS ROYAL HIGHNESS PRINCE ARTHUR WILLIAM  
PATRICK ALBERT, DUKE OF CONNAUGHT AND OF STRATHEARN, K.C.,  
K.T., K.P., &c., &c., GOVERNOR GENERAL OF CANADA

MAY IT PLEASE YOUR ROYAL HIGHNESS:

The undersigned has the honour to lay before Your Royal Highness a report on the "Water-works and Sewerage Systems of Canada."

Respectfully submitted,

CLIFFORD SIFTON,  
*Chairman,*  
*Commission of Conservation*

OTTAWA, Feb. 29, 1916

OTTAWA, Feb. 28, 1916

SIR:

I have the honour to transmit herewith a report on the "Water-works and Sewerage Systems of Canada," which gives statistics of the principal physical and financial data respecting these public utilities.

Your obedient servant,

JAMES WHITE,  
*Deputy Head and Assistant to Chairman*

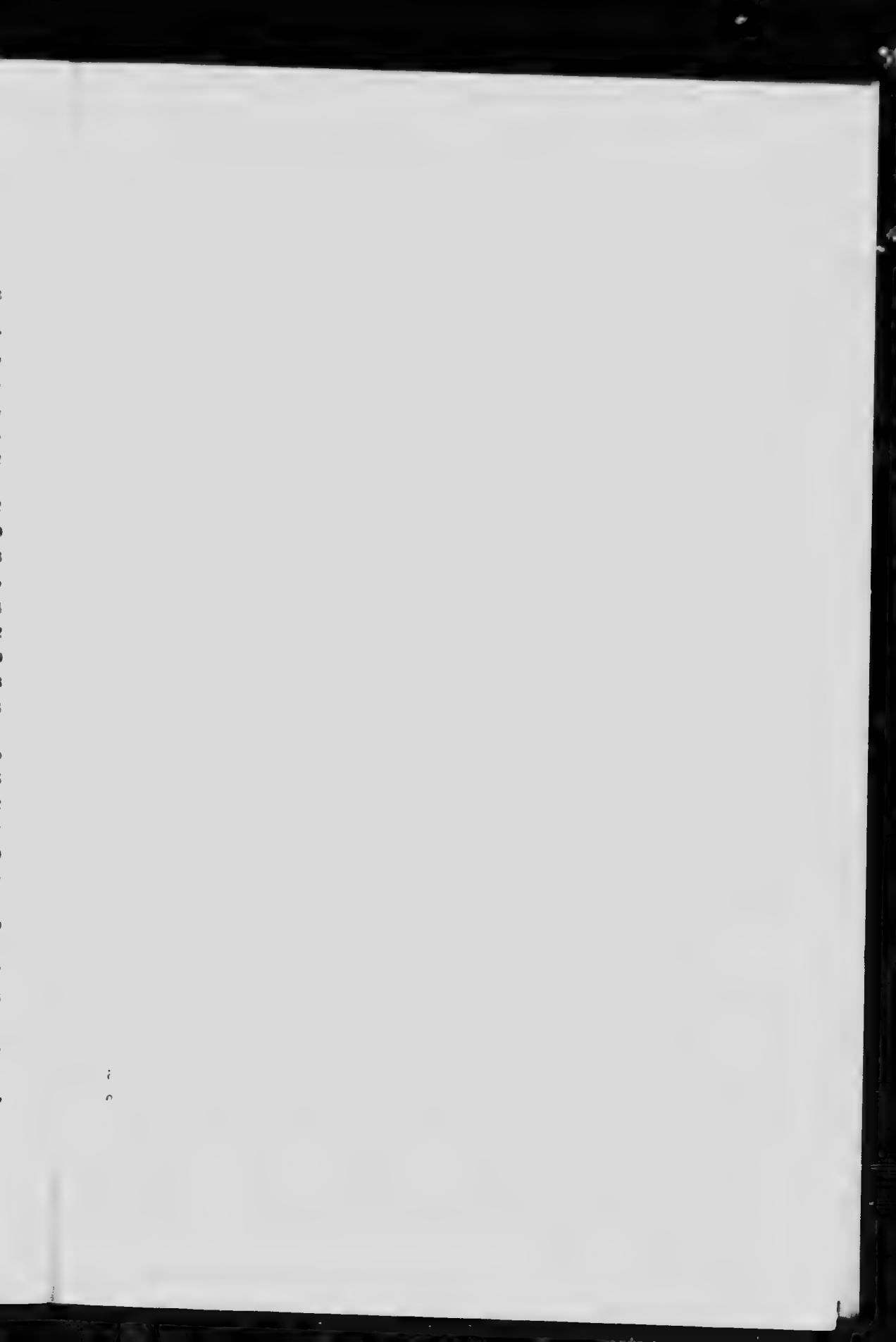
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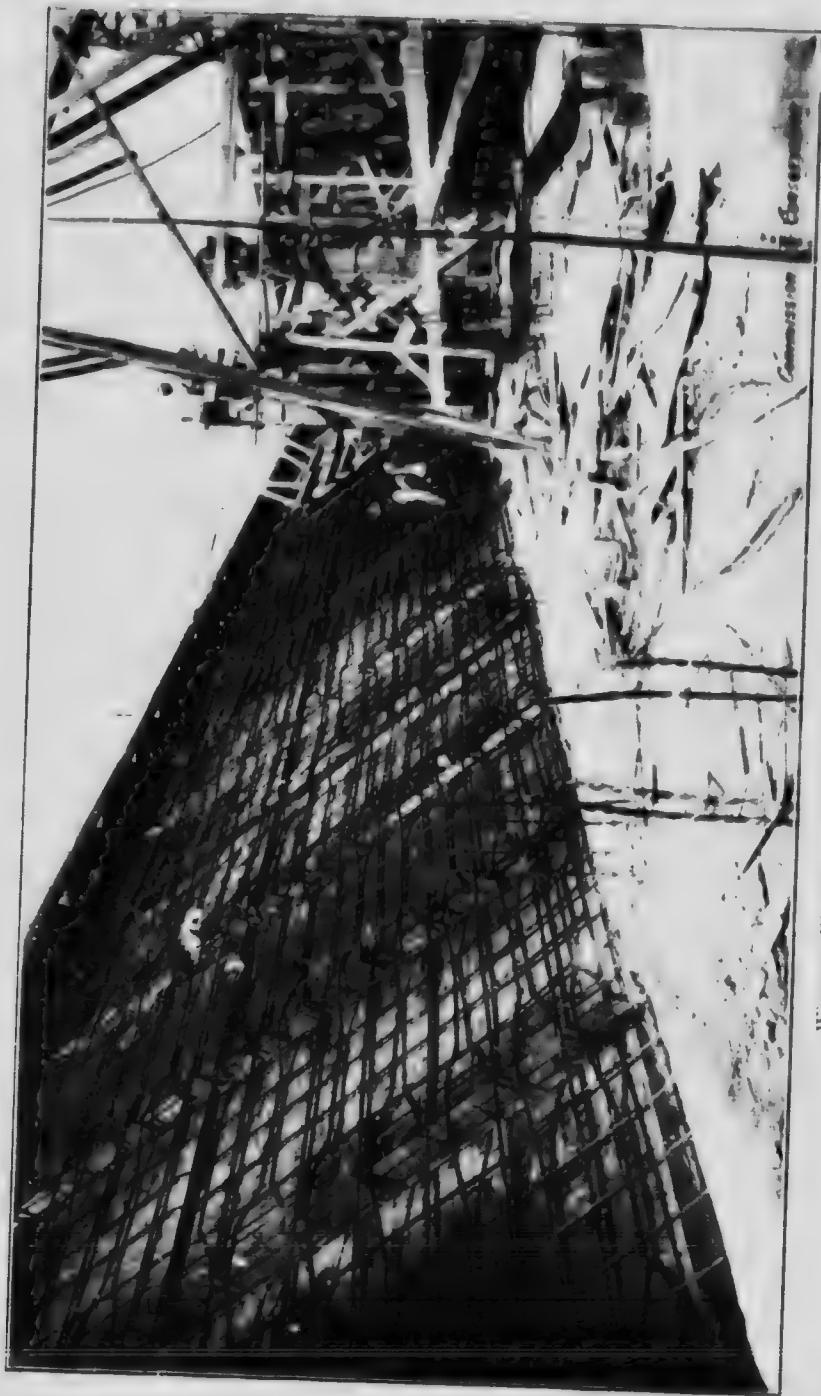
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Winnipeg Water Works 13 (Arch 2) Riverbank under Construction

## Introduction

THE problems incident upon the obtaining of adequate water supplies for both urban and rural centres in Canada are yearly becoming more acute. This is due, no doubt, to the rapid growth of large centres of population, coupled with the ever increasing difficulty of keeping the sources of supply free from pollution. In view of the interest that is perforce being taken in such problems, the Commission of Conservation in 1912 published a report on the "Water-Works of Canada." The report aimed at presenting, in a form readily available for reference, the principal physical data respecting the water-works systems then in existence in Canada. The demand for the report soon made it evident that a further edition would be required, and, rather than reprint the report as first published, it was decided to revise it and to add such further information as could be obtained. It was also decided to obtain physical data with respect to sewerage systems in Canada, and to publish these as Part II of the revised report.

Accordingly, an effort was first of all made to ascertain what water-works systems had been constructed since the publication of the first report. The following card was sent, therefore, to all towns and villages which had previously reported having no water-works:

Sir:—

The Commission of Conservation desires to obtain information respecting the water-works in Canada. We shall be much obliged if you will fill in the below blanks. A simple "Yes" or "No" will indicate whether you have water-works in your municipality or not.

Please return card at your earliest convenience. It will come post free.

Name of municipality .....  
Is there a water-works in your town or village? .....

Signed.....

N.B.—Kindly answer and return card even if there are NO water-works.

The next step was to send the following circulars, the first relating to water-works and the second to sewerage systems, with a covering letter to the officials of all towns and villages which had answered "Yes" on the card previously sent:

## COMMISSION OF CONSERVATION

## COMMISSION OF CONSERVATION,

Ottawa, Canada.

Dear Sir:—

The Commission of Conservation is collecting information respecting water supply in Canada, and is desirous of enlisting your aid in the work. Would you be good enough to send me a description of the water supply of your town or city, including therein full information along the lines suggested by the questions below? Your thorough familiarity with your plant will doubtless enable you to furnish us with many interesting details that cannot be covered by a set of arbitrary questions such as is here appended.

- (1) Name of City or Town.....
- (2) Population (Number of *persons*, not families served).....
- (3) Is the plant privately or municipally owned?.....  
If the former, kindly state name of company.....
- (4) Source of supply—whether taken from lake, river or springs (stating name).....  
Give distance of source of supply from centre of distribution.....
- (5) Method of supply—whether by gravity or direct pressure.....  
If pumping is used, state:—  
(a) Maximum and average horse power used.....  
(b) Kind of power (steam, electric, etc.).....  
(c) If pumped to reservoir, stand-pipe, tank or directly into mains.....
- (6) Cost of supply plant.....
- (7) Cost of distribution system.....
- (8) Name and official capacity of officer in charge.....
- (9) Mains:—  
(a) Length in miles.....  
(b) Kind of material in pipe.....  
(c) Sizes and lengths of each kind.....
- (10) Number of hydrants.....
- (11) Daily consumption in imperial gallons.....
- (12) Ordinary pressure in pounds.....
- (13) Fire pressure.....
- (14) Annual cost of maintenance (a) Operation and repairs.....  
(b) Interest.....
- (15) Number of services and kind of pipe used for same.....
- (16) Number of consumers.....
- (17) Annual revenue from consumers.....
- (18) Annual revenue from public uses.....
- (19) Is water supplied on flat or meter rate?.....  
What are charges for each?.....
- (20) If reservoirs are used, state:  
(a) Number.....  
(b) Sizes.....
- (21) Is any part of your plant duplicated for cases of accidents or emergency?.....  
If so, state which parts.....
- (22) Year in which plant began operations.....

## WATER-WORKS OF CANADA

3

(23) Do you use a filter plant?...  
If so, what kind?...  
Are results satisfactory?...

Thanking you in anticipation of an early reply, I am,

Yours faithfully,

JAMES WHITE,

*Assistant to Chairman.*

## COMMISSION OF CONSERVATION

### Information on Sewerage System

(1) Name of City or Town.....  
County..... Province.....

(2) Is your municipality sewered?.....

(3) (a) Do your sewers carry domestic sewage, street drainage and storm water in the same pipe; or  
(b) Do the sewers carry domestic sewage only?.....

(4) Number of miles of sewer mains.....

(5) Do your sewers discharge directly into a lake or stream?.....  
If so, please give the names, with sizes of sewer outlet into each

(6) Is sewage treated in any way? If so (a) describe method briefly  
(b) state if method has been successful or what difficulties have been met with.....

(7) What tests have been made to determine the character of the treated sewage? Please give the results of any such tests

(8) Give cost of sewerage system as follows:  
(a) Cost of sewers.....  
(b) Cost of sewage disposal plant.....

To revise and bring up to date the information included in the first report, a copy of the published description was sent to each municipality, and they were asked to revise and correct same. Copies of the two circulars mentioned above were also included, with the request that they fill in any water-works information not given and to answer the few questions relating to the sewerage system, if applicable.

This report has been compiled from answers to this correspondence and is arranged in a concise and convenient form for ready reference. It will prove of interest to anyone interested in water supply generally, but the main object is to acquaint those more directly connected with the management and operation of water-works systems with the conditions existing in other plants than their own.

Tables are also included summarizing points of special interest, such as growth of the number of water-supply systems, sources of supply, rates, consumption, etc.

The subject of sewerage and sewage disposal is given more space than previously, as the question of stream pollution is becoming very serious in Canada. As a proof of this the following list of inland waters receiving raw sewage has been compiled from the data in the report, the figures following each showing the number of municipalities thus disposing of their sewage:

#### INLAND WATERS RECEIVING RAW SEWAGE

##### NOVA SCOTIA

Annapolis river, 3  
Cornwallis river, 1

La Have river, 1

##### NEW BRUNSWICK

Miramichi river, 1  
Petitcodiac river, 1

St. John river, 3

##### QUEBEC

Bécancourt river and tributaries, 3	Richelieu river and tributaries, 5
Châteauguay river, 2	River du Loup, 1
Chaudière river, 2	Ste. Anne river, 1
L'Assomption river and tributaries, 3	St. Francis river and tributaries, 15
Lièvre river, 1	St. Lawrence river, 29
Nièvre river and tributaries, 4	St. Maurice river, 3
North river, 2	Saguenay river and tributaries, 4
Ottawa and des Prairies rivers, 6	Yamaska river and tributaries, 9

##### ONTARIO

Bear creek, 1	Moira river, 1
Bighead river, 1	Muskoka river, 1
Bonnechère river, 1	Otter creek, 1
Credit river, 1	Ottawa river, 3
Grand river, 2	Rainy river, 2
Junction creek, 1	Rideau river, 1
Lake Erie to head of St. Clair river, 6	St. Lawrence river, 6
" Huron " " St. Mary " 9	Saugeen " 3
" Ontario " " Niagara " 10	Sturgeon " 1
" Simcoe, 1	Sydenham " 1
" Superior, 2	Tay " 1

## WATER-WORKS OF CANADA

### ONTARIO—(continued)

Lake Timiskaming, 1	Thames river, 1
Medawaska river, 1	Thessalon " 1
Maitland " 1	Trent tributaries, 2
Marshy lake, 1	Twelvemile creek, 1
	Wabi river, 1

### MANITOBA, SASKATCHEWAN AND ALBERTA

Assiniboine river, 2	Red river, 3
Bow river and tributaries, 3	Red Deer river, 1
Boyne river, 1	North Saskatchewan river, 2
Oldman " 1	South Saskatchewan " 2

### BRITISH COLUMBIA

Columbia river, 1	Kootenay river, 1
-------------------	-------------------

From most of the above streams, municipalities draw their water supply, the intakes being situated at points below the discharge outlet for sewage.

The supply of water to communities is the most important use of inland waters and the value of a pure supply, as compared with one polluted by sewage, can scarcely be over-estimated. Even where water systems are provided with filtration plants, there is great danger of overloading the filters if the source of supply is grossly polluted by raw sewage. The use of water filters should be only an additional factor of safety in an operation which should begin with the proper treatment of sewage. A well known Canadian authority on municipal engineering has advanced the statement that, "if the domestic sewage which now discharges, by means of underground sewers, directly into streams, rivers and lakes, without any form of treatment, were treated to the extent of the elimination and destruction of the sewage bacteria, at least fifteen hundred lives could be saved annually in Canada from death by typhoid alone."

It may not be out of place, at this juncture, to refer to a certain method of water purification which is being very freely adopted in America. Much has been said for and against the hypochlorite or similar treatment. It is recognized, however, that as a solitary treatment to obtain pure water it cannot be considered a permanent method. While it would be most unwise not to immediately resort to this treatment in cases of emergency, its usefulness should end there. One of the principal objections to its permanent use is the "residual chlorine" taste or odour acquired by the water in this treatment. It is the opinion of certain authorities on water-purification that to be certain of the destruction of all the bacteria, such an excess of the chemical is necessary, as to be noticeable to smell and taste; or *vice versa*; that if there is no smell and taste in the purified water the bacteria are not destroyed with certainty.

## COMMISSION OF CONSERVATION

Part I of the present report includes descriptions of numerous water-works systems not mentioned in the report of 1912, as well as of many changes in systems described in that volume.

Part II contains information regarding sewers and sewage disposal systems in the various municipalities where such exist. This section has been considerably extended and covers many systems not previously described.

### EXPLANATORY

The information relating to each water-works system is given under the name of the city, town or village, these being classified alphabetically under each province, while the provinces are arranged geographically, from east to west.

The population served, as estimated by the municipality concerned, is given in parentheses following directly the name of the county in which the municipality is situated. In a few cases, the population given does not agree with the population of the city, town or village; this is due to the fact that sometimes the water-works system extends beyond the municipal limits, while, in other cases, it does not include the whole of the municipality.

Under "rates," the figures given for "bath-room" include both bath and water-closet. The figures for "flat rate" for dwelling or family include charge for bath-room service, except where a rate is given for "bath-room" separately. Unless otherwise stated, the yearly flat rate charges are given.

The "consumption" is given in imperial gallons per day. Wherever possible, the total cost or value of the plant has been separated into "supply plant," and "distribution system." The former includes all material, etc., except the street mains, while the latter includes street mains, hydrants and accessory material. In many instances, however, the officer in charge was unable to supply these separately and in such cases the total values only are given.

In the descriptions of the water distribution systems, "C. I." means "cast iron," and "W. I." means "wrought iron."

## Water Works NOVA SCOTIA

**AMHERST**, Cumberland co., (6,000). In operation since 1891; owned by municipality. **Supply**: pumped from Nappan river, 3 miles distant, directly to tanks and reservoir, steam power used, 62 h.p., pumps and boilers are in duplicate. **Reservoirs**: 1 of 2,000,000 gal. capacity. **Distribution**: 11 miles of C. I. mains; 52 hydrants; 1,681 services, lead pipe. **Pressure**: ordinary, 68 lbs; fire, 76 lbs. **Consumption**: 1,500,000 gal. **Financial**: total cost of plant, \$116,000; annual maintenance, \$5,900; interest, \$13,700; revenue, \$20,000. **Rates**: flat rate, \$10 per dwelling including bath-room, meter rate, 8c. per 1,000 gal. Officer in charge: Chas. Campbell, Water works Engineer.

**ANAPOLIS ROYAL**, Annapolis co., (1,000). In operation since 1889; owned by municipality. **Supply**: by gravity from "First Pond" lake; area, 24 acres; depth, 30 ft.; 350 ft. above town level, 4 miles distant. **Distribution**: 2 miles of 8 in., 2½ miles of 6 in., and 1 mile of 4 in. C. I. pipe; 26 hydrants; 108 services feeding whole town. **Pressure**: 100 lbs. **Financial**: cost of pipe line and hydrants, \$27,500; total cost, \$31,000; annual maintenance, \$2,100, revenue, \$2,600. **Rates**: flat rate, 8c per family; 8c for bath-room. Officer in charge: Samuel Rippey.

**ANTIGONISH**, Antigonish co., (2,000). In operation since 1890; owned by municipality. **Supply**: brook, by gravity from 2 reservoirs, 3 miles distant. **Reservoirs**: 2, of 3,000,000 gal and 1,500,000 gal. capacity respectively. **Distribution**: 7 miles of C. I. mains, 4 in. to 8 in.; 26 hydrants; 300 services, ½ in. galv. iron pipe; 310 consumers. **Pressure**: ordinary, 70 lbs; fire, 140 lbs. **Financial**: cost of plant, \$48,000; annual maintenance, \$900; revenue from consumers, \$2,300; from public uses, \$1,050. **Rates**: flat rate, tap and bath-room, \$11; tap, \$5. Officer in charge: S. A. Hulbert, Superintendent.

**BADDECK**, Victoria co. No public supply. Two hotels have a private supply by gravity from a spring.

**BRIDGETOWN**, Annapolis co., (1,000). In operation since 1887; owned by municipality. **Supply**: by gravity from springs and Crosskill lake on the North mountain, 2½ miles distant. **Distribution**: 1 mile of 8 in., 3 miles of 6 in., 6 miles of 4 in. C. I. pipe; 31 hydrants; 315 services, ½ in. galv. iron pipe. **Reservoirs**: 2 of 1,500,000 and 2,000,000

## COMMISSION OF CONSERVATION

gal. capacity respectively. **Pressure:** 100 lbs. **Consumption:** 90,000 gal. **Financial:** total cost of plant, \$35,600; annual maintenance, \$2,000; revenue, \$2,200. **Rates:** flat rate, \$5 for first tap, bath-room, \$5 additional; special rates for factories, etc., meter rate 5c. to 50c. per 1,000 gal., according to amount. Officer in charge: Geo. Geie, Superintendent.

**BRIDGEWATER**, Lunenburg co., (2,500). In operation since 1902; owned by municipality. **Supply:** pumped from Manamkie, Lipsigate and Hebbs lakes, 3 miles distant, to reservoir; water-power used, 9 h.p. **Reservoir:** 1 of 1,500,000 gal. capacity. **Distribution:** 11 miles of C. I. mains, 4 in. to 8 in.; 41 hydrants; 366 services,  $\frac{1}{2}$  in. to 1 in. galv. iron and lead pipe. **Pressure:** 65 lbs. to 110 lbs. **Consumption:** 50,000 gal. **Financial:** total cost of plant, including sewers, \$85,209; annual maintenance, \$890; interest, \$3,230; revenue, \$3,752. **Rates:** flat rate, \$5 per dwelling; bath-room, \$3. Officer in charge: W. McCarthay, Superintendent.

**CANNING**, Kings co., (600). In operation since 1894; owned by municipality. **Supply:** by gravity from springs and brook, 2 miles distant. **Distribution:** 2 miles of 8 in. and 2 miles of 6 in. and 4 in. C. I. pipe; 29 hydrants; 150 services,  $\frac{1}{2}$  in. galv. iron. **Reservoir:** 1 of 2,000,000 gal. capacity. **Pressure:** 50 to 75 lbs. **Financial:** total cost of plant, \$27,000; annual maintenance, \$250; revenue, \$850. **Rates:** flat rate, \$5 for first domestic tap, \$1 for additional; \$5 for bath-room. Officer in charge: W. D. F. Smith, Superintendent.

**DARTMOUTH**, Halifax co., (5,058). In operation since 1892; owned by municipality. **Supply:** by gravity from Lamont and Topsail lakes, areas, 23 and 141 acres, respectively, and  $2\frac{1}{2}$  miles distant. **Distribution:** 15 miles of C. I. mains, 4 in. to 20 in.; 103 hydrants; 1,163 services, lead and galv. iron pipe; **Pressure:** 25 lbs. to 95 lbs. **Financial:** total cost of plant, \$300,000; annual maintenance, \$3,823; interest \$10,025; revenue, \$11,994. **Rates:** flat rate, \$4 and upward per dwelling, based on value of property; meter rate, 8c. to 15c. per 1,000 gal. Officer in charge: E. Nichols, Superintendent and Engineer.

**DIGBY**, Digby co., (1,500). In operation since 1895; owned by municipality. **Supply:** by gravity from spring, brooks and Lily lake, 3 miles distant. **Reservoirs:** 2, one at source of supply, capacity 14,000,000 gal., and one in town, capacity 500,000 gal. **Distribution:** 9 miles of C. I. mains, 4 in. to 10 in.; 21 hydrants; 285 services, 1 in. lead pipe. **Pressure:** ordinary, 80 lbs.; fire, 125 lbs. **Financial:** cost of plant, \$40,000; annual maintenance, \$730; revenue, \$2,760. **Rates:** flat

## WATER-WORKS OF NOVA SCOTIA

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rate, \$5 per family; \$5 for bath-room. Officer in charge: Geo. A. Vye, Superintendent.

**DOMINION**, Cape Breton co., (2,500). In operation since 1912; owned by municipality. **Supply**: from town of Glace Bay system, 1½ miles distant. **Distribution**: 5 miles of C. I. and galv. iron mains, 2 in. to 6 in.; 8 hydrants; 318 services, ½ and ¾ in. galv. iron pipe. **Pressure**: ordinary, 40 lbs.; fire, 53 lbs. **Consumption**: 20,000 gal. **Financial**: cost of distribution system, \$16,857; annual revenue, \$1,352. **Rates**: flat rate, \$7.80 per tap. Officer in charge: M. Martin, Superintendent.

**GLACE BAY**, Cape Breton co., (17,000). In operation since 1903; owned by municipality. **Supply**: by gravity from lake, 3 miles distant to pumps, thence pumped to mains and reservoir, 3 miles distant from pumps; pumps are in duplicate; steam power used, maximum, 125 h.p., average, 119 h.p. **Reservoir**: 1 of 1,000,000 gal. capacity. **Distribution**: 3½ miles of C. I. and galv. iron mains, 2 in. to 16 in., 97 hydrants; 1,900 services, ¾ in. galv. iron pipe. **Pressure**: ordinary 75 lbs. at high elevation; fire, 30 lbs. at high elevation to 75 lbs. at low elevation; average, 65 lbs. **Consumption**: 1,500,000 gal. **Financial**: total cost of plant, \$335,366; annual maintenance, \$11,439; interest, \$12,000; revenue, \$20,687. **Rates**: flat rate, \$6 to \$13 per dwelling. Officer in charge: J. H. Morris, Superintendent.

**HALIFAX**, Halifax co., (53,000). In operation since 1848; owned by municipality. **Supply**: by gravity from Long lake and chain of lakes, 4 miles distant, and Spruce Hill lakes, 7 miles distant. **Distribution**: 77 miles of C. I. mains, from 4 in. to 27 in.; 467 hydrants; low service mains are in duplicate; 7,900 services, lead pipe. **Pressure**: ordinary, 35 lbs.; fire 160 lbs. **Consumption**: 9,000,000 gal. **Financial**: total cost of plant, \$1,330,000; annual maintenance, \$95,000; revenue, \$100,000. **Rates**: flat rate on assessment basis, 22c. per \$100; meter, 5c. to 14½c. per 1,000 gal. Officer in charge: F. W. W. Doane, City Engineer.

**HANTSPOST**, Hants co., (700). In operation since 1905; owned by municipality. **Supply**: by gravity from Davison lake, 9 miles distant. **Reservoir**: 1 of 600,000 gal. capacity. **Distribution**: 11 miles of C. I. mains, 4 in. and 6 in.; 28 hydrants; 150 services, ½ in. galv. iron pipe. **Pressure**: 110 lbs. **Financial**: cost of plant, \$42,000; annual maintenance, \$400; interest, \$1,680; revenue from consumers, \$1,000; from public uses, \$300. **Rates**: flat rate, tap \$6; bath-room, \$5. Officer in charge: G. T. Ferguson, Town Clerk.

**INVERNESS**, Inverness co., (3,000). In operation since 1905; owned by municipality. **Supply**: by gravity from springs, 2½ miles distant.

**Reservoir:** 1 of 1,000,000 gal. capacity. **Distribution:** 5 miles of C. I. mains, 4 in. to 10 in.; 20 hydrants; 420 services,  $\frac{1}{2}$  in. galv. iron pipe. **Pressure:** ordinary, 80 lbs.; fire, 85 to 130 lbs. **Financial:** total cost of plant, \$50,000; annual maintenance, \$743; interest and sinking fund, \$2,962; revenue, \$3,975. **Rates:** flat rate, \$6 per family. Officer in charge: Colin McDougall.

**KENTVILLE**, Kings co., (2,000). In operation since 1887; owned by municipality. **Supply:** by gravity from Mill brook and Magee lake, 4 miles distant. **Reservoirs:** 3 of 1,000,000, 2,000,000 and 4,000,000 gal. capacity respectively. **Distribution:** 14½ miles of C. I. and steel mains, 4 in. to 8 in.; 64 hydrants; 425 services,  $\frac{1}{2}$  to 2 in galv. iron pipe. **Pressure:** 100 lbs. **Consumption:** 400,000 gal. **Financial:** total cost of plant, \$64,773; annual maintenance, \$613; interest and sinking fund, \$2,206; revenue \$4,132. **Rates:** flat rate, tap, \$5 per year; bath-room, \$5.50; meter, 7c. to 50c. per 1,000 gal. Officer in charge: J. R. Neale, Superintendent.

**LIVERPOOL**, Queens co., (2,100). In operation since 1899; owned by municipality. **Supply:** by gravity from Town lake, 2 miles distant. **Distribution:** 5 miles of C. I. mains, 6 in. to 10 in.; 30 hydrants; 275 services,  $\frac{1}{2}$  to 2 in. galv. iron pipe. **Pressure:** 75 to 85 lbs. **Financial:** total cost of plant, \$30,500; annual maintenance \$625 (exclusive of interest); revenue from consumers, \$2,264; from public uses, \$300. **Rates:** flat rate basis, \$5 per dwelling; bath-room, \$3. Officer in charge: A. H. Drew, Superintendent.

**LOUISBURG**, Cape Breton co., (700). In operation since 1900; owned by the Louisburg Electric, Water & Power Co. **Supply:** by gravity from Stewart lake and Jerrott brook, 1 mile distant. **Distribution:** 3 miles of C. I. mains, 4 in. to 10 in.; 70 services,  $\frac{3}{4}$  in. galv. iron pipe. **Pressure:** 69 lbs. (max.) **Financial:** cost of plant, \$20,000; annual maintenance, \$350; revenue from consumers, \$400; from public uses, \$1,500. **Rates:** flat, \$5 per service; bath-room, \$12. Officer in charge: F. O'Neil, Sec.-Treas.

**LUNENBURG**, Lunenburg co., (4,000). In operation since 1895; owned by municipality. **Supply:** from Cantelope lake, 3 miles distant; pumped into a reservoir or directly into mains by water-power. **Reservoir:** 1 of 1,250,000 gal. capacity. **Distribution:** 9 miles of C.I. mains, 4 in. to 10 in.; 54 hydrants; 485 services,  $\frac{1}{2}$  in. to 2 in. galv. iron pipe. **Pressure:** 45 to 95 lbs. **Financial:** cost of plant, \$90,000; annual maintenance, \$3,000; interest and debentures, \$3,500; revenue

from consumers, \$5,920; from public uses, \$750. **Rates:** flat rate, \$7 for first tap, \$2 for each additional; bath-room, \$6. Officer in charge: Thomas Hamm, Superintendent.

**MIDDLETON**, Annapolis co., (950). In operation since 1891; owned by municipality. **Supply:** by gravity from a lake and springs, 3 miles distant. **Reservoirs:** lake serves as reservoir (40 acres); another reservoir, 480,000 cu. ft. capacity. **Distribution:** 7 miles of C. I. mains 4 in. and 6 in.; 24 hydrants; 190 services,  $\frac{1}{2}$  in. and  $\frac{3}{4}$  in. galv. iron pipe. **Pressure:** ordinary, 90 lbs.; fire, 120 lbs. **Financial:** total cost of plant, \$35,000; annual maintenance, \$200; revenue from consumers, \$2,800; from public uses, \$800. **Rates:** flat, first tap, \$1 to \$10. Officer in charge: E. S. Dodge, Superintendent.

**NEW GLASGOW**, Pictou co., (8,500). In operation since 1887; gravity system since 1912; owned by municipality. **Supply:** by gravity from Forbes lake, 7 miles distant; pumping plant for emergency. **Reservoir:** 1 of 2,000,000 gal. capacity. **Distribution:** 30 miles of C. I. and steel mains, 4 in. to 20 in.; 100 hydrants; 1,640 services,  $\frac{1}{2}$  in. to  $\frac{3}{4}$  in. lead pipe. **Pressure:** 92 lbs. **Consumption:** 1,800,000 gal. **Financial:** cost of supply plant, \$220,000; cost of distribution system, \$175,000; annual maintenance, \$3,000; interest, \$14,800; revenue, \$26,000. **Rates:** meter, 3c. to 30c. per 1,000 gal.; flat rate, \$5 and upward per dwelling. Officer in charge: E. S. Fraser.

**NORTH SYDNEY**. (See under *Sydney Mines*.)

**OXFORD**, Cumberland co., (1,200). In operation since 1897; owned by the Oxford Water & Power Supply, Ltd. **Supply:** by gravity from springs, 1 mile distant. **Reservoirs:** 2 of 350,000 gal. and 72,000 gal. capacity respectively. **Distribution:** 3 miles of C. I. mains, 4 in. to 8 in.; 13 hydrants; 210 services, galv. iron pipe. **Pressure:** 37 lbs. **Consumption:** 75,000 gal. **Financial:** total cost of plant, \$26,000; annual maintenance, \$200; revenue, \$2,000. **Rates:** flat rate, tap, \$6; \$6 for bath-room. Officer in charge: T. M. Johnson, Manager.

**PARRSBORO**, Cumberland co., (2,500). In operation since 1897; owned by municipality. **Supply:** by gravity from springs and brooks, 3 miles distant. **Reservoir:** 1 of 1,000,000 gal. capacity and 2 others formed by dams of 1,000,000 and 2,000,000 gal. capacity. **Distribution:** 4½ miles of C. I. mains, 4 in. to 10 in.; 52 hydrants; 430 services. **Pressure:** 70 lbs. **Consumption:** 225,000 gal. **Financial:** total cost

of plant, \$60,000; annual maintenance, \$2,840 (including interest); revenue from consumers, \$2,700; from public uses, \$2,200. **Rates:** flat rate, \$5 for first tap; bath-room, \$4. Officer in charge: B. J. Dyas, Superintendent.

**PICTOU**, Pictou co., (3,200). In operation since 1901; owned by municipality. **Supply:** pumped from artesian wells,  $\frac{1}{2}$  mile distant, to stand-pipe; steam and electric power used, 30 h.p. to 45 h.p.; pumping apparatus in duplicate. **Reservoir:** stand-pipe, 60 ft.  $\times$  40 ft. **Distribution:** 9 miles of C. I. mains, 6 in. to 12 in.; 67 hydrants; 672 services,  $\frac{3}{4}$  in. galv. iron pipe. **Pressure:** ordinary, 110 lbs.; fire, 45 lbs. to 110 lbs. **Consumption:** 190,000 gal. **Financial:** cost of supply plant, \$20,000; cost of distribution system, \$104,000; annual maintenance, \$3,500; interest, \$4,845; revenue from consumers, \$6,000; from public uses, \$1,500. **Rates:** flat rate, \$6 for first tap; bath-room, \$6. Officer in charge: G. Bailiff, Superintendent.

**SPRINGHILL**, Cumberland co., (5,700). In operation since 1904; owned by municipality. **Supply:** by gravity from springs,  $6\frac{1}{2}$  miles distant. **Reservoirs:** 3, of 600,000 and 400,000 gal. capacity respectively and stand-pipe of 155,000 gal. capacity. **Distribution:** 22 miles of C. I. mains, 4 in. to  $12\frac{1}{2}$  in.; 63 hydrants; 1,000 services,  $\frac{3}{4}$  in. lead pipe. **Pressure:** 35 to 120 lbs. **Consumption:** 450,000 gal. **Financial:** cost of supply plant, \$110,000; cost of distribution system, \$30,000; annual maintenance, \$1,302; interest and sinking fund, \$7,113; revenue from consumers, \$8,400; from public uses, \$1,800. **Rates:** flat rate, \$6 per tap. Officer in charge: G. R. Oulton, Superintendent.

**STELLARTON**, Pictou co., (4,000). In operation since 1892; owned by municipality. **Supply:** pumped to reservoir from East river,  $\frac{1}{2}$  mile distant; steam power used, 150 h.p.; boiler and pumps are in duplicate; gravel filter used with satisfactory results. **Reservoir:** 1 of 1,000,000 gal. capacity. **Distribution:** 8 miles of C. I. mains, 4 in. to 10 in.; 60 hydrants; 800 services,  $\frac{3}{4}$  in. lead pipe. **Pressure:** ordinary, 75 lbs.; fire, 80 lbs. **Consumption:** 450,000 gal. **Financial:** total cost of plant, \$80,000; annual maintenance, \$10,000; revenue, \$10,800. **Rates:** flat rate, \$5 and upward per dwelling; bath-room, \$2; meter rate, 6c. to 8c. per 1,000 gal. Officer in charge: J. Potts, Town Engineer.

**SYDNEY**, Cape Breton co., (22,000). In operation since 1893; new reservoir in 1902; owned by municipality. **Supply:** by gravity from Sullivan brook, 3 miles distant. **Reservoirs:** 2, one of 5,000,000

gal. and a storage reservoir of 200,000,000 gal. capacity. **Distribution:** 29½ miles of C. I. mains, 4 in. to 24 in.; 160 hydrants; 2,470 services, ½ in. lead and ½ in. to 1 in. galv. iron pipes. **Pressure:** 30 to 87 lbs. **Consumption:** 2,035,000 gal. **Financial:** total cost of plant, \$434,000; annual maintenance, \$5,578; revenue, \$31,000. **Rates:** flat rate, \$5 for first tap; bath-room, \$8.50; meter rate, 8c. to 20c. per 1,000 gal. **Officer in charge:** N. K. Hay, City Engineer.

**SYDNEY MINES**, Cape Breton co., (5,500). In operation since 1903; jointly owned by North Sydney, N.S. Steel & Coal Co. and Sydney Mines. **Supply:** pumped from Pottles lake, 3 miles distant, to reservoir and directly into mains; steam power used, 175 h.p.; pumping apparatus in duplicate. **Reservoir:** 1 of 1,300,000 gal. capacity. **Distribution:** 14 miles of C. I. mains, 4 in. to 12 in.; 96 hydrants; 1,100 services, ½ in. galv. iron pipe. **Pressure:** ordinary, 50 lbs.; fire, 90 lbs. **Consumption:** 1,000,000 gal. **Financial:** cost of supply plant, \$45,000; cost of distribution system, \$87,000; annual maintenance, \$6,500; revenue from consumers, \$7,500; from public uses, \$100. **Rates:** flat rate, \$6 for one tap; bath-room \$5.50. **Officer in charge:** Y. C. Barrington.

**TRENTON**, Pictou co., (2,500). **Proposed system:** to be owned by municipality. **Supply:** from deep wells in town and by gravity to pump; pumped to reservoir, electric power to be used, average 15 h.p. **Distribution:** C. I. mains, 6 in. to 12 in. **Pressure:** 115 lbs **Consumption:** estimated at 75,000 gal. **Financial:** estimated cost of supply plant, \$8,000; of distribution system, \$50,000. **Officer in charge:** F. W. Forbes, Town Engineer.

**TRURO**, Colchester co., (7,500). In operation since 1875; owned by municipality. **Supply:** by gravity from Lepper brook, 1½ miles distant, also pumped from Salmon river; steam power used, 90 h.p.; pumps are in duplicate. **Reservoir:** 1 of 30,000,000 gal. capacity. **Distribution:** 14 miles of C. I. mains, 4 in. to 14 in. and 2 miles of smaller galv. iron; 118 hydrants; 1,050 services, galv. iron and lead pipes. **Pressure:** ordinary, 90 lbs.; fire, 120 lbs. **Consumption:** 1,000,000 gal. **Financial:** cost of supply plant, \$18,000; cost of distribution system, \$185,000; annual maintenance, \$4,500; interest, \$7,400; revenue from consumers, \$14,000. **Rates:** flat rate, \$6 per dwelling; bath-room, \$4; meter, 5c. to 8c. per 1,000 gal. **Officer in charge:** G. C. McDowell, Town Engineer.

**WESTVILLE**, Pictou co., (3,600). In operation since 1895; owned by municipality. **Supply:** pumped to reservoir from Middle river, 1

mile distant; steam power used, maximum, 125 h.p.; average, 75 h.p.; boilers and pumps are in duplicate. **Filter:** gravel and sand filter used. **Reservoir:** 1 of 1,500,000 gal. capacity. **Distribution:** 14 miles C. I. mains, 4 in. to 10 in.; 53 hydrants; 885 services,  $\frac{1}{2}$  in. and  $\frac{3}{4}$  in. lead pipe. **Pressure:** ordinary, 75 lbs.; fire, 60 lbs. **Consumption:** 181,135 gal. **Financial:** cost of supply plant, \$20,000, cost of distribution system, \$57,650; annual maintenance, \$3,262; interest, \$3,150; revenue from consumers, \$5,680; from public uses, \$736. **Rates:** flat rate, \$6.50 and upward per family; meter rate,  $7\frac{1}{2}$ c. to 50c. per 1,000 gal. Officer in charge: H. Carr, Town Engineer.

**WINDSOR**, Hants co., (3,000). In operation since 1882; owned by municipality. **Supply:** by gravity from Mill lakes, 8 miles distant. **Reservoirs:** 3, of 5,000,000 gal. each, and 1 storage reservoir of 700,000,000 gal. **Distribution:** 9 miles of C. I. mains, 4 in. to 10 in.; 66 hydrants; 500 services, lead pipe. **Pressure:** 40 to 85 lbs. **Consumption:** 350,000 gal. **Financial:** total cost of plant, \$90,000; annual maintenance, \$3,500 including interest on debentures; revenue, \$5,000. **Rates:** flat rate based on assessed value, \$4 and upward per dwelling; bath-room, \$3. Officer in charge: F. Mounce, Superintendent.

**WOLFVILLE**, Kings co., (1,458). In operation since 1890; owned by municipality. **Supply:** by gravity from Duncan brook, 3 miles distant. **Reservoir:** 1, capacity, 7,100,000 gal. **Distribution:** 7 miles of C. I. mains, 2 in. to 8 in.; 42 hydrants. **Pressure:** 80 lbs. **Financial:** total cost of plant, \$43,000; annual maintenance, \$2,500; including interest; revenue from consumers, \$2,800; from public uses, \$10. **Rates:** flat rate, \$5 per tap; bath-room, \$8. Officer in charge: A. C. Johnson, Superintendent.

**YARMOUTH**, Yarmouth co., (6,700). In operation since 1881; owned by municipality. **Supply:** by gravity from lake George, 9 miles distant, and pumped to reservoir or directly into mains; steam and electric power used, 21 h.p.; boilers and pumps are in duplicate. **Reservoir:** 1 of 2,000,000 gal. capacity. **Distribution:** 35 miles of C. I. mains, 4 in. to 12 in.; 105 hydrants; 1,388 services, lead pipe. **Pressure:** ordinary, 50 lbs.; fire, 60 lbs. **Consumption:** 808,627 gal. **Financial:** total cost of plant \$348,429; annual maintenance, \$3,096; interest, \$14,280; revenue from consumers, \$20,342; from public uses, \$584. **Rates:** flat rate, \$7.50 to \$21, based on number of taps; meter rate, 20c. per 1,000 gal.

## PRINCE EDWARD ISLAND

**CHARLOTTETOWN**, Queens co., (12,500). In operation since 1888-89; owned by municipality. **Supply**: pumped from wells, near Three-mile brook, to reservoir; steam power used; capacity of pumps, 2,500,000 gal. **Reservoir**: 1 covered distributing reservoir, 1,250,000 gal. capacity. **Distribution**: 20  $\frac{1}{2}$  miles of mains, 4 in. to 14 in.; 96 hydrants; 2,250 services, lead and galv. iron pipe. **Pressure**: 60 lbs. **Consumption**: 860,000 gal. **Financial**: total cost of plant, \$270,000; annual maintenance, \$9,000; interest, \$10,000; revenue, \$28,000. **Rates**: flat rate, \$6 per family; \$8 for bath-room; meter rate, 30c. per 1,000 gal. Officer in charge: Chas. Dalziel, Superintendent.

**GEORGETOWN**, Kings co., (1,300). In operation since 1904; owned by Prince Edward Island railway. Prince Edward Island railway has a system to supply engines and station; water is supplied by gravity from springs a short distance away. **Distribution**:  $\frac{1}{2}$  mile of 6 in. mains. **Consumption**: 10,000 gal.

**SUMMERSIDE**, Prince co., (3,400). In operation since 1908; owned by municipality. **Supply**: pumped from artesian wells, 1 mile distant, directly into mains and to stand-pipe; steam power used; maximum, 50 h.p.; average, 35 h.p.; boilers and pumps are in duplicate. **Reservoir**: stand-pipe, 366,000 gal. capacity. **Distribution**: 8.1 miles of iron mains, 4 in. to 10 in.; 56 hydrants; 300 services. **Pressure**: 75 to 90 lbs **Consumption**: 62,984 gal. **Financial**: total cost of plant including sewers, \$91,119; annual maintenance, \$6,453; revenue from consumers, \$6,453. **Rates**: flat rate, \$6 and upward per dwelling; bath-room, \$8; meter, 30c. per 1,000 gal. Officer in charge: Alf. Groom.

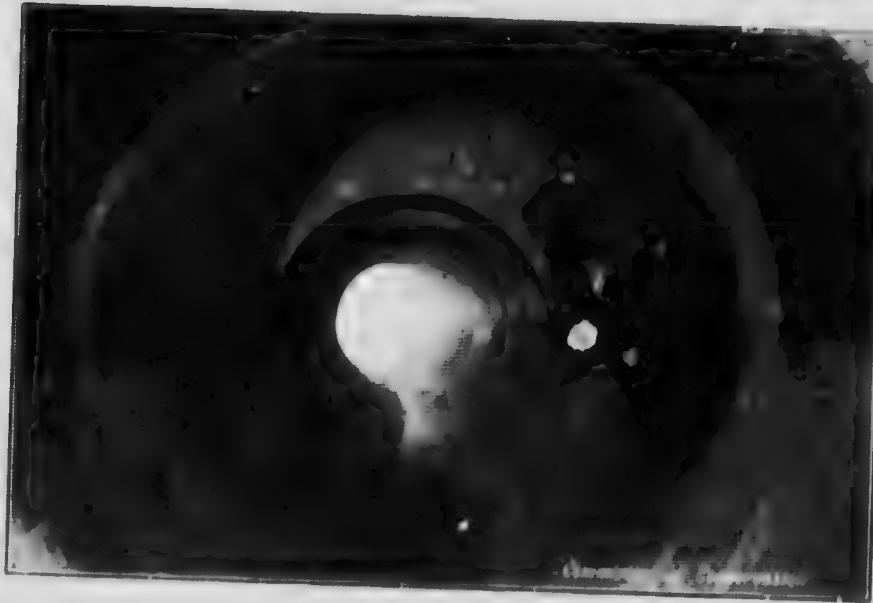
## NEW BRUNSWICK

**ANDOVER**, Victoria co., (500). In operation since 1898; owned by municipality. **Supply**: by gravity from brook, 1 mile distant. **Reservoir**: 1 of 150,000 gal. capacity. **Distribution**: 2 miles of 6 in. C. I. mains; 20 hydrants; 78 services,  $\frac{1}{2}$  in. iron pipe. **Pressure**: 52 lbs. **Consumption**: 20,000 gal. **Financial**: cost of plant, \$11,500; annual maintenance, \$700; revenue, \$700. **Rates**: flat rate, \$5 per family. Water Commission in charge.

**CAMPBELLTON**, Restigouche co., (5,000). In operation since 1889; owned by municipality. **Supply**: by gravity from springs, brooks and Parker and Smith lakes, 4 miles distant. **Reservoirs**: 2 of 3,500,000 and 100,000,000 gal. capacity respectively. **Distribution**: 13 miles of C. I. mains, 4 in. to 16 in.; 65 hydrants; 600 services,  $\frac{1}{2}$  in. to 1 in. lead pipe. **Pressure**: 80 lbs. **Consumption**: 250,000 gal. **Financial**: cost of plant, \$227,000; annual maintenance (including interest), \$8,700; revenue from consumers, \$9,000; from public uses, \$1,300. **Rates**: flat rate, \$8 per family for first tap; bath-room, \$5. Officer in charge: R. J. Sandover-Sly, Town Engineer.

**CHATHAM**, Northumberland co., (5,000). In operation since 1901; owned by municipality. **Supply**: pumped from Morrison brook, 9½ miles distant, directly into mains; steam power used, 75 h.p. max., 60 h.p. average; boilers and pumps are in duplicate. **Reservoir**: stand-pipe 420,000 gal. capacity. **Distribution**: 11½ miles of C. I. mains, 2 in. to 12 in.; 72 hydrants; 420 services, iron and lead pipes. **Pressure**: ordinary, 38 to 71 lbs.; fire 80 to 100 lbs. **Consumption**: 560,000 gal. **Financial**: cost of supply plant, \$22,000; distribution system, \$94,000; annual maintenance, \$4,600; interest and sinking fund, \$8,250; revenue, \$4,800. **Rates**: flat rate, first tap, \$5, additional, \$1; bath-room, \$4; large consumers on meters. Officer in charge: Alex. N. Mackay, Superintendent of Town Works.

**DALHOUSIE**, Restigouche co., (1,650). In operation since 1908; owned by municipality. **Supply**: by gravity from McNish brook, 2½ miles distant; auxiliary electric pumping from artesian wells. **Reservoir**: 1 of 1,000,000 gal. capacity. **Distribution**: 4 miles of C. I. mains, 4 in. to 8 in.; 28 hydrants; 187 services,  $\frac{1}{2}$  in. to 1½ in. lead pipe. **Pressure**: ordinary, 78 lbs.; fire, 100 lbs. **Consumption**: 35,000 gal. **Financial**: total cost of plant, \$70,000; annual maintenance, \$200; revenue, \$4,000. **Rates**: flat rate, \$10 per dwelling. Officer in charge: William A. Gallop, Water Superintendent.



Toronto Sewerage System—One of the Mains



Regina Sewage Disposal Works—Filter under Construction



## WATER-WORKS OF NEW BRUNSWICK

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**EDMUNDSTON**, Victoria co., (1,500). In operation since 1911; owned by municipality. **Supply**: pumped from wells, 1 mile distant, to reservoir or mains, electric power used, 125 h.p., steam auxiliary pumping plant. **Reservoir**: 1 of 350,000 gal. capacity. **Distribution**: 4 miles of C. I. mains, 6 in. to 12 in., 40 hydrants; 276 services, galv. iron pipe with lead connection. **Pressure**: ordinary, 95 lbs.; fire, 125 lbs. **Consumption**: 100,000 gal. **Financial**: cost of supply plant, \$12,000; cost of distribution system, \$12,000; annual maintenance, \$1,000; interest, \$1,200; revenue, \$3,500. **Rates**: flat rate, \$10 and upward per dwelling. Officer in charge, F. X. St. Aubin, Superintendent.

**FREDERICTON**, York co., (7,771). In operation since 1883; owned by municipality. **Supply**: pumped from St. John river, about 1 mile distant, through filtration system, into mains. Steam power used; pumps and station appliances are in duplicate. **Filter**: mechanical rapid sand used. **Reservoir**: 1 of 391,500 gal. capacity. **Distribution**: 14½ miles C. I. mains, 3 in. to 14 in.; 106 hydrants; 1,350 services, ½ in. to 2 in. lead and galv. iron pipe. **Pressure**: ordinary, 40 to 60 lbs.; fire, 85 to 90 lbs. **Consumption**: 529,500 gal. **Financial**: total cost of plant to date, \$223,141; annual maintenance, \$16,700; interest, \$9,050; revenue from consumers, \$15,200; from public uses, \$2,200; from direct taxation, \$7,200. **Rates**: flat rate, \$5 for first tap, bath-room, \$8; meter rate, 10c. to 25c. per 1,000 gal. Officer in charge, G. Edney.

**GIBSON**, York co., (550). In operation since 1906; owned by municipality. **Supply**: pumped from wells, 1 mile distant, to reservoir; wind power used with steam auxiliary. **Reservoir**: 1 of 300,000 gal. capacity. **Distribution**: 2 miles of C. I. mains, 4 in. to 8 in.; 17 hydrants; 128 services, ½ in. lead and iron pipe. **Pressure**: 68 lbs. **Financial**: cost of supply plant, \$6,000; distribution system, \$15,900; annual maintenance, \$600; interest, \$697; revenue, \$790. **Rates**: flat rate, \$5 per tap; bath-room, \$9. Board of Commissioners in charge.

**GRAND FALLS**, Victoria co., (800). In operation since 1910; owned by municipality. **Supply**: pumped from St. John river, 1 mile distant, into mains and reservoir; electric power used, 125 h.p., with steam pump as an auxiliary. **Reservoir**: 1 of 275,000 gal. capacity. **Distribution**: 4½ miles of C. I. mains, 4 in. to 10 in.; 29 hydrants; 130 services, galv. iron pipe. **Pressure**: ordinary, 82 lbs.; fire, 93 lbs. **Consumption**: 60,000 gal. **Financial**: cost of supply plant, \$5,000; cost of distribution system, \$37,000; annual maintenance, \$1,000;

interest, \$2,000; revenue from consumers, \$2,000; from public uses, \$100. **Rates:** flat rate, \$6 per dwelling. Officer in charge, C. F. West, Superintendent.

**HARTLAND**, Carleton co., (700). In operation since 1895, owned by municipality. **Supply:** by gravity from springs, ½ mile distant, with an auxiliary of 15 h.p. gasoline engine to pump directly into mains. **Reservoir:** 1 of 106,000 gal. capacity. **Distribution:** ½ mile of C. I. mains, 4 in. to 6 in.; 12 hydrants, 100 services, ½ in. galv. iron pipe. **Pressure:** ordinary, 50 lbs.; fire, 60 lbs. **Consumption:** 20,000 gal. **Financial:** total cost of plant, \$13,500; annual maintenance, \$500; revenue, \$400. **Rates:** flat rate, \$4 per dwelling. Officer in charge, T. G. Simms.

**MILLTOWN**, Charlotte co. (1,804). In operation since 1886; owned by the Maine Water Co., supplied from St. Stephen. **Supply:** pumped into reservoirs from wells about 6 miles distant; gas power used; pumping appliances in duplicate. **Reservoirs:** 1 in Milltown, 1,000,000 gal. capacity, and 1 in St. Stephen, 2,500,000 gal. capacity. **Distribution:** 4 miles of C. I. pipe, 6 in. to 12 in.; 33 hydrants; 288 services, ½ in. galv. iron pipe. **Pressure:** 100 lbs. **Consumption:** 20,000 gal. **Financial:** annual revenue, \$1,600. **Rates:** flat rate, \$7 per family. Officer in charge: L. R. Bradley, Superintendent.

**MONCTON**, Westmorland co., (13,000). In operation since 1920, owned by municipality. **Supply:** by gravity from Black Mill and McNutt brooks, 4 miles distant, to pumping station, thence pumped directly into mains; electric and gas power used, 200 to 450 h.p.. **Reservoirs:** 2 of 200,000,000 and 300,000,000 gal. capacity respectively. **Distribution:** 31½ miles of C. I. mains, 3 in. to 20 in.; 106 hydrants; 1,600 services, lead and galv. iron pipes. **Pressure:** ordinary, 45 lbs.; fire, 110 lbs. **Consumption:** 1,800,000 gal. **Financial:** total cost of plant, \$377,398; annual maintenance, \$16,500; revenue, \$55,000. **Rates:** flat rate, \$10 to \$20 per dwelling; meter rate, 10c. to 25c. per 1,000 gal. Officer in charge: J. Edington, City Engineer.

**NEWCASTLE**, Northumberland co., (3,500). In operation since 1904; owned by municipality. **Supply:** pumped from artesian wells either into reservoir or directly into mains; steam power used. **Reservoir:** 1 of 125,000 gal. capacity. **Distribution:** 7 miles of C. I. mains; 27 hydrants; 300 services, galv. iron and lead pipe. **Pressure:** ordinary, 85 lbs.; fire, 125 to 150 lbs. **Consumption:** 100,000 gal. **Financial:** total cost of plant, \$100,000; annual maintenance, \$3,500; revenue,

## WATER-WORKS OF NEW BRUNSWICK

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from consumers, \$3,000; from public uses, \$1,000. **Rates:** flat rate, \$2 for first tap, bath-room, \$14. Other in charge J. W. Murray, Engineer.

**PERTH**, Victoria co., (300). In operation since 1902; owned by municipality. **Supply:** by gravity from brook and spring, 1½ miles distant. **Reservoir:** 1 of 250,000 gal. capacity. **Distribution:** 1½ miles of C. I. mains, 6 in. and 4 in.; 17 hydrants, 80 services, ½ in. galv. iron pipe. **Pressure:** 25 to 60 lbs. **Consumption:** 100,000 gal. **Financial:** total cost of plant, \$13,000; annual maintenance, \$200; interest, \$600; revenue, \$1,000. **Rates:** flat rate on assessment basis. Officer in charge: J. Anderson.

**ST. ANDREWS**, Charlotte co. In operation since 1911; owned by Can. Pac. Ry. in connection with hotel, to be extended to the town. **Supply:** from Chamecook lake, 5 miles distant.

**ST. JOHN**, St. John co., (48,000). In operation since 1837; owned by municipality. **Supply:** by gravity from Loch Lomond and Spruce lake, 10 and 5 miles distant, respectively. **Reservoirs:** Loch Lomond 2,480 acres; lake Robertson, 28 acres; lake Latimer, 200 acres; Little river, 55 acres; Spruce lake, 1,000 acres. **Distribution:** 8½ miles of concrete conduits, wood stave pipe and C. I. pipe 2 in. to 48 in.; 436 hydrants; 6,708 services, lead pipe. **Pressure:** 20 to 90 lbs. **Consumption:** 10,000,000 gal. **Financial:** total valuation of plant, \$4,216,000; annual maintenance, \$48,391; interest at 1% sinking fund, \$109,987; annual revenue, \$201,415. **Rates:** flat rate, \$3 per family, bath-room, \$7; meter rate, 10c. per 1,000 gal. Officer in charge: William Murdoch, City Engineer.

**ST. MARYS**, York co., (625). In operation since 1908; owned by municipality. **Supply:** pumped from artesian wells, ½ mile distant, to reservoir; steam power used, 5 h.p.; can also be supplied from Gibson system. **Reservoir:** 1 of 25,000 gal. capacity. **Distribution:** 2 miles of C. I. mains, 4 in. to 8 in.; 21 hydrants; 129 services, ½ in. galv. iron pipe. **Pressure:** 65 lbs. **Consumption:** 25,000 gal. **Financial:** total cost of plant, \$25,000; annual maintenance, \$800; interest, \$1,200; revenue, \$845. **Rates:** flat rate, \$5 per tap; bath-room, \$8. Officer in charge: Wm. Jaffrey, Secretary of Water Commission.

**ST. STEPHEN**, Charlotte co., (3,000). In operation since 1908; owned by municipality. **Supply:** for supply system see under *Milltown*, which is supplied from this system. **Distribution:** 1½ miles of C. I.

mains, 4 in. to 16 in.; 58 hydrants; 670 services, galv. iron pipe. **Pressure:** 120 lbs. **Consumption:** 475,000 gal. **Financial:** total cost of plant, \$184,000; annual maintenance, \$7,000; revenue, \$19,000. **Rates:** flat rate, \$7 per dwelling; bath-room, \$10. Officer in charge: A. A. Laflin, Superintendent.

**SACKVILLE**, Westmorland co., (4,000). In operation since 1902; owned by municipality. **Supply:** by gravity from springs, 3 miles distant. **Distribution:** 6 miles of C. I. mains, 4 in. to 14 in.; 40 hydrants; 300 services. **Pressure:** 55 to 85 lbs. **Financial:** total cost of plant \$90,000; annual maintenance, \$1,000; interest, \$5,000; revenue, \$6,200. **Rates:** flat rate, \$7 for first tap; bath-room, \$4. Officer in charge: Wm. Pringle, Superintendent.

**SHEDIAC**, Westmorland co., (300). In operation since 1906; owned by municipality. **Supply:** pumped from artesian well,  $\frac{1}{2}$  mile distant, to reservoir and elevated tank; electric power used; pumps are in duplicate. **Reservoirs:** 2, one of 200,000 gal. capacity and an elevated tank of 80,000 gal. capacity. **Distribution:**  $1\frac{1}{2}$  miles of iron mains, 6 in. and 8 in.; 24 hydrants; 60 services, galv. iron pipe. **Pressure:** 70 lbs **Consumption:** 16,000 gal. **Financial:** total cost of plant, \$25,000; annual maintenance, \$2,000; interest, \$1,000; revenue, \$450; **Rates:** flat rate, \$5 per dwelling; meter rate 20c. per 1,000 gal. Officer in charge: W. Gunn.

**WOODSTOCK**, Carleton co., (3,856). In operation since 1882; owned by municipality. **Supply:** pumped from St. John river  $\frac{1}{2}$  mile distant to stand-pipe, thence by gravity, or directly into mains; electric power used, maximum 100 h.p., average, 50 h.p.; apparatus in duplicate. **Reservoir:** 1 stand-pipe, 287,000 gal. capacity. **Distribution:** 6 miles of C. I. mains, 4 in. to 10 in.; 80 hydrants; 800 services, galv. iron pipe. **Pressure:** ordinary, 60 lbs.; fire, 85 lbs. **Consumption:** 320,000 gal. **Financial:** cost of supply plant, \$35,000; distribution system, \$80,000; annual maintenance, \$4,000; revenue from consumers, \$6,000; from public uses, \$1,000. **Rates:** flat rate, \$6 and upward per dwelling; bath-room, \$6.50; meter, 25c. per 1,000 gal. Officer in charge: A. G. Fields, Superintendent.

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**ACTIONVALE**, Saguenay co., (1,500). In operation since 1880; owned by private company. Supply: pumped from Moose river to reservoir; water and steam power used, average, 15 h.p. Reservoir: 1, of 41,000 gal. capacity. Distribution: 3 miles of C. I. mains, 2 in. to 5 in.; 15 hydrants; 180 services,  $\frac{3}{4}$  in. and 1 in. galv. iron pipe. Pressure: ordinary, 60 lbs.; fire, 100 lbs. Consumption: town, 65,000 gal.; G. T. Ry., 60,000 gal. Financial: cost of plant, \$23,000; annual maintenance, \$600; revenue, \$2,650. Rates: flat rate, \$6 to \$8 per tap; bath-room \$4. Officer in charge: J. A. Vincent, President.

**AMQUI**, Rimouski co., (1,800). In operation since 1914; owned by municipality. Supply: pumped from Pearson brook,  $1\frac{1}{4}$  miles distant, to reservoir; electric power used, average, 60 h.p.; water treated with hypochlorite of lime. Reservoir: 1 of 250,000 gal. capacity. Distribution:  $3\frac{1}{2}$  miles of C. I. mains, 6 in. and 8 in.; 36 hydrants; 220 services,  $\frac{3}{4}$  in. and  $\frac{1}{2}$  in. galv. iron pipe. Pressure: ordinary, 60 lbs.; fire, 85 lbs. Consumption: 40,000 gal. Financial: cost of supply plant, \$19,000; distribution system, \$36,000; annual maintenance, including interest, \$3,000; revenue from consumers, \$1,850, from public uses, \$360. Rates: flat rate, \$9 per dwelling. Officer in charge: J. A. Brillant.

**ANDREVILLE**, Kamouraska co., (650). In operation since 1887; privately owned. Supply: by gravity from springs, 1 mile distant. Reservoir: 1, of 30,000 gal. capacity. Distribution:  $1\frac{1}{4}$  miles of C. I. mains, 2 in. to 6 in.; 100 services. Pressure: 30 lbs. Financial: total cost of plant, \$15,000; annual maintenance, \$150; revenue, \$640. Rates: flat rate, \$6 to \$8 per dwelling. Owned by C. A. R. Desjardins.

**ARTHABASKA**, Arthabaska co., (1,300). In operation since 1904; owned by municipality. Supply: by gravity from mountain springs,  $\frac{1}{2}$  mile distant. Reservoirs: 3, of 500,000 gal., 30,000 gal. and 18,000 gal. capacity respectively. Distribution:  $3\frac{1}{2}$  miles of C. I. and W. I. mains, 2 in. to 8 in.; 20 hydrants; 200 services, iron pipe. Pressure: 90 lbs. Financial: total cost of plant, \$30,000; annual revenue, \$2,000. Rates: flat rate, \$6 per tap, \$5 for bath-room. Officer in charge: C. R. Garneau, Secretary-treasurer.

**ASBESTOS**, Richmond co., (2,500). In operation since 1912; owned by municipality. Supply: by gravity from springs, 2 miles distant

**Reservoir:** 1, of 40 × 30 ft. **Distribution:** 2½ miles of 8 in. C. I. mains; 26 hydrants; 300 services, ½ in. pipe. **Pressure:** 85 lbs. **Financial:** total cost of plant, \$35,000; annual maintenance, \$50; revenue, \$1,900. **Rates:** flat rate, \$7 per dwelling. Officer in charge: A. Lavigne.

**AYERS CLIFF**, Stanstead co., (300). In operation since 1908; privately owned. **Supply:** by gravity from springs, 1½ mile distant. **Reservoirs:** 2, of 40,000 gal. and 25,000 gal. capacity respectively. **Distribution:** 3 miles of C. I. and W. I. mains, 2 in. and 4 in.; 1 hydrant; 80 services, ½ in. galv. iron pipe. **Pressure:** ordinary, 50 lbs.; fire, 55 lbs. **Consumption:** 5,000 gal. **Financial:** cost of plant, \$6,000; annual maintenance, \$200; interest, \$400; revenue, \$700. **Rates:** flat rate, \$8 per dwelling; bath-room, \$5. Officer in charge: L. L. Clough, Secretary-treasurer.

**AYLME** Ottawa co., (3,300). In operation since 1895; owned by municipality. **Supply:** pumped from lake Deschênes, 1,500 ft. distant, directly into mains; steam power used, 50 h.p.; pumps are in duplicate. **Distribution:** 5½ miles of C. I. mains, 4 in. to 8 in.; 33 hydrants; 350 services, ½ in. to 1 in. lead pipe. **Pressure:** ordinary, 68 lbs.; fire, 130 lbs. **Consumption:** 250,000 gal. **Financial:** total cost of plant, \$53,300; annual maintenance, \$3,550; revenue, \$6,500. **Rates:** flat rate, \$6 and upward per dwelling; bath-room, \$6; meter rate, 15c. per 1,000 gal. Officer in charge: N. Leblanc.

**BAGOTVILLE**, Chicoutimi co., (967). In operation since 1913; owned by municipality. **Supply:** pumped from Mars river, 700 ft. distant, to reservoir or directly into mains; steam power used, 60 h.p. **Reservoir:** 1, of 100,000 gal. capacity. **Distribution:** 1½ miles of steel pipe, 2 in. to 6 in.; 16 hydrants; 150 services, ½ in. galv. iron pipe. **Pressure:** ordinary, 95 lbs.; fire, 85 lbs. **Consumption:** 40,000 gal. **Financial:** total cost of plant, \$23,000; annual maintenance, \$300; revenue, \$1,800. **Rates:** flat rate, \$10 for first tap, \$2 for additional. Officer in charge: A. Potvin, Secretary-treasurer.

**BEAUHARNOIS**, Beauharnois co., (2,000). In operation since 1890; owned by municipality. **Supply:** pumped from lake St. Louis, 1,900 ft. distant, to stand-pipe; steam power used, 80 h.p.; pumps and boilers in duplicate. **Distribution:** 3.2 miles of C. I. mains, 4 in. to 8 in.; 32 hydrants; 500 services; lead and galv. iron pipes. **Pressure:** ordinary, 48 lbs.; fire, 90 lbs. **Consumption:** 150,000 gal. **Financial:** total cost of plant, \$65,000; annual maintenance, \$5,000; revenue, \$10,000. **Rates:** flat rate, varying with number of taps.

**BÉCANCOURT**, Nicolet co., (200). In operation since 1891; privately owned. **Supply**: pumped from Bécancourt river, 300 ft. distant, to tank; steam and wind power used. **Reservoir**: tank of 19,000 gal. capacity. **Distribution**: 1 mile of C. I. mains, 3 in. and 4 in.; 32 services, lead and galv. iron pipe. **Financial**: total cost of plant, \$3,000; annual revenue, \$200. **Rates**: flat rate, \$6 to \$15 per dwelling. Owned by Evariste Lemire.

**BEEBE**, Stanstead co., (800). In operation since 1894; owned by municipality. **Supply**: by gravity from springs, 2 miles distant. **Reservoirs**: 2, of 280,000 gal. and 1,100,000 gal. capacity respectively. **Distribution**: 4 miles of C. I. mains, 4 in. and 6 in.; 20 hydrants; 175 services, 1 in. galv. iron pipe. **Pressure**: ordinary, 43 lbs.; fire, 70 lbs. **Financial**: cost of supply plant, \$18,000; cost of distribution system, \$7,000; annual maintenance, \$700; revenue, \$2,000. **Rates**: flat rate, \$8 per dwelling; bath-room, \$5. Officer in charge: I. W. Brainerd, Superintendent.

**BELŒIL**, Verchères co., (1,100). In operation since 1903; owned by municipality. **Supply**: by gravity from springs on St. Hilaire mountain, 1 mile distant. **Reservoirs**: 2, of 50,000 gal. and 235,000 gal. capacity respectively. **Distribution**: 2 miles of C. I. mains, 4 in. and 6 in.; 33 hydrants; 350 services, lead pipe. **Pressure**: ordinary, 25 lbs.; fire, 80 lbs. **Consumption**: 60,000 gal. **Financial**: cost of supply \$5,000; cost of distribution system, \$3,500; annual maintenance; interest and sinking fund, \$2,000; revenue, \$3,600. **Rates**: flat rate, \$7 to \$15 per dwelling on assessment basis.

**BERTHIERVILLE**, Berthier co., (1,300). In operation since 1879; owned by municipality. **Supply**: pumped from St. Lawrence river, 400 ft. distant to reservoir; steam power used, 80 h.p.; pumps are in duplicate. **Distribution**: 6 miles of C. I. and W. I. mains, 2 in. to 5 in.; 19 hydrants; 335 services. **Pressure**: ordinary, 35 lbs.; fire, 60 to 100 lbs. **Consumption**: 120,000 gal. **Financial**: total cost of plant, \$35,000 annual maintenance, \$1,800; revenue from consumers, \$4,500; from public uses, \$60. **Rates**: flat rate on assessment basis. Officer in charge: E. Rocray, Superintendent.

**BIENVILLE**, Lévis co., (1,000). In operation since 1908; owned by municipality. **Supply**: pumped from an artesian well and springs, 800 ft. distant, to reservoirs. **Reservoirs**: 3, of the following dimensions: 50 ft.  $\times$  48 ft.; 30 ft.  $\times$  31 ft.; 28 ft.  $\times$  30 ft. respectively. **Distribution**: 3 miles of C. I. mains, 4 in. to 6 in.; 7 hydrants; 196

services, iron pipe. **Pressure:** ordinary, 26 lbs.; fire, 88 lbs. **Consumption:** 30,000 gal. **Financial:** total cost of plant, \$25,000; annual maintenance, \$600; interest, \$400; revenue, \$2,500. **Rates:** flat rate \$7 80 per dwelling. Officer in charge: A. Lévesque, Superintendent.

**BLACK LAKE**, Megantic co., (3,000). In operation since 1908; owned by municipality. **Supply:** from Caribou lake, 2½ miles distant, pumped to a natural reservoir; electric power used, maximum, 200 h.p. **Reservoir:** 1, of 2,000 ft. diameter. **Distribution:** 3½ miles of C. I. mains, 6 in. to 10 in.; 50 hydrants; 300 services, lead and iron pipe. **Pressure:** ordinary, 75 lbs. to 15 lbs. **Financial:** cost of supply plant, \$20,000; cost of distribution system, \$55,000; annual maintenance, \$2,500; interest, \$4,000; revenue from consumers, \$6,000; from public uses, \$500. **Rates:** flat rate, \$10 per dwelling; meter rate, 40c. per 1,000 gal. Officer in charge: Dr. C. D. Paradis, ex-Mayor.

**BUCKINGHAM**, Labelle co., (3,864). In operation since 1892; owned by municipality. **Supply:** pumped from Lièvre river, 300 ft. distant, directly into mains; water-power used, average, 125 h.p. **Distribution:** 7 miles of C. I. mains, 4 in. to 10 in.; 78 hydrants; 700 services, ½ in. to 1 in. lead pipe. **Pressure:** ordinary, 60 lbs.; fire, 95 lbs. **Consumption:** 1,000,000 gal. **Financial:** total cost of plant, \$77,747; annual maintenance, \$2,000; revenue, \$9,983. **Rates:** flat rate on assessment basis, 14½c. per \$100. Officer in charge: F. Fournier.

**CAMPBELLS BAY**, Pontiac co., (600). In operation since 1906; owned by Campbells Bay Water Works Co. **Supply:** pumped from Ottawa river, 300 yds. distant, to tank; wind power and gasoline engine used, 4 h.p. **Reservoirs:** 8 tanks of 400 gal. capacity each. **Distribution:** 1 mile of 2 in. steel pipe; 8 hydrants; 28 services. **Pressure:** ordinary, 35 lbs.; fire, 25 lbs. **Financial:** cost of supply plant, \$500; cost of distribution system, \$1,500; annual maintenance, \$110. **Rates:** flat rate, \$6 per dwelling. Officer in charge: G. A. Smith, Manager.

**CAP ST. IGNACE**, Montmagny co., (4,000). In operation since 1904; owned by "Compagnie d'Aqueduc du Cap St. Ignace." **Supply:** by gravity from springs, 4½ miles distant. **Reservoirs:** 2, one small, and the other of 1,500,000 gal. capacity. **Distribution:** 5½ miles of C. I. and W. I. mains, 4 in. to 8 in.; 10 hydrants; 135 services, ½ in. galv. iron pipe. **Pressure:** ordinary, 90 lbs.; fire, 125 to 140 lbs. **Financial:** total cost of plant, \$40,000; annual maintenance (exclusive of interest), \$200; revenue from consumers, \$1,200; from public uses, \$600. **Rates:** flat rate on assessment basis, from \$6 to \$15 per dwelling.



Brantford Water-works -- Extension Work on Galleries



*Commission of Conservation*

Hamilton Water-works -- Crib at the End of 48 inch Intake Pipe



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**CARTIERVILLE**, Jacques Cartier co., (1,000). In operation since 1902, owned by Montreal Public Service Corporation. **Supply**: pumped from des Prairies river, 1 mile distant, to mains; electric and steam power used, 30 h.p. **Purification**: water treated with hypochlorite of lime. **Distribution**: 5 miles of C. I. mains, 4 in. to 8 in.; 48 hydrants; 280 services,  $\frac{1}{2}$  in. pipe. **Pressure**: ordinary, 80 lbs.; fire, 100 lbs. **Consumption**: 100,000 gal. **Financial**: cost of supply plant, \$20,000; cost of distribution system, \$50,000; annual maintenance, \$4,000; interest, \$4,000; revenue from consumers, \$5,000; from public uses, \$1,000. **Rates**: flat rate, \$7 for first tap.

**CEDARS**, Soulange co., (235). In operation since 1909; owned by private company. **Supply**: pumped from St. Lawrence river, 350 ft. distant, to 8 small reservoirs; capacity of pumps, 3 h.p. **Distribution**:  $\frac{1}{2}$  mile, galv. iron pipe, 1 $\frac{1}{2}$  in. and 1 $\frac{1}{2}$  in.; 22 consumers. **Consumption**: 1,600 gal. **Financial**: total cost of plant, \$800; annual maintenance, \$25; revenue, \$132. **Rates**: flat rate, \$6 per family. Officer in charge: A. M. Bissonnette.

**CHAMBLY BASIN**, Chamblay co., (1,000). In operation since 1896; supply system owned by Willett's Ltd., distribution system by municipality. **Supply**: pumped from Richelieu river at Chamblay Canton, directly into mains; electric power used, 20 h.p., with steam pumping for emergencies. **Purification**: water treated with hypochlorite of lime. **Distribution**: 4 miles of mains, 4 in. and 6 in.; 45 hydrants; 240 services, lead pipe. **Pressure**: ordinary, 40 lbs.; fire, 100 lbs. **Financial**: cost of distribution system, \$25,000; annual maintenance, \$700; interest and debentures, \$850; revenue, \$1,500. **Rates**: on assessment basis included with other municipal taxes. Officer in charge: C. Roy, Secretary-treasurer.

**CHAMBLY CANTON**, Chamblay co., (857). In operation since 1897; distribution system owned by municipality. **Supply**: same as *Chamblay Basin*. **Distribution**: 3 $\frac{1}{2}$  miles of C. I. mains, 2 in. to 8 in.; 21 hydrants; 215 services,  $\frac{1}{2}$  in. lead pipe. **Pressure**: ordinary, 35 to 40 lbs.; fire, 100 lbs. **Financial**: cost of distribution system, \$20,000; annual maintenance, \$700; interest and debentures, \$875; revenue, \$1,600. **Rates**: flat rate on assessment basis, \$6 to \$28 per dwelling. Officer in charge: J. Demers, Secretary-treasurer.

**CHARLEMAGNE**, (875), Lachenaie, (575), St. François de Sales, (550), St. Paul l'Ermite, (500), l'Assomption co. These 4 parishes have a common system of water supply which is privately owned and has

been in operation since 1906. **Supply:** by gravity from springs, 2 miles distant from Lachenaie. **Reservoirs:** 17 reservoirs of various sizes. **Distribution:** 18 miles of W. I. and galv. iron mains, 2 in. to 6 in.; 5 hydrants, 490 services. **Pressure:** 20 lbs. to 30 lbs. **Consumption:** 175,000 gal. **Financial:** cost of supply plant, \$7,000; cost of distribution system, \$33,000; annual maintenance, \$1,000; revenue, \$5,500. **Rates:** flat rate, \$6 to \$10 per dwelling. Owned by The M. Moody & Sons Co., Terrebonne, P. Q.

**CHÉNÉVILLE**, Labelle co., (250). In operation since 1887; privately owned. **Supply:** by gravity from a spring, 1 mile distant. **Reservoir:** 35 ft.  $\times$  35 ft.  $\times$  8 ft. **Distribution:** 2 miles of 4 in. C. I. and W. I. mains; 26 hydrants; 70 services, lead and iron pipes. **Pressure:** ordinary, 60 lbs.; fire, 70 lbs. **Financial:** total cost of plant, \$7,000; annual maintenance, \$200; revenue, \$400. **Rates:** flat rate, \$9 per dwelling. Owned by H. Lefebvre.

**CHICOUTIMI**, Chicoutimi co., (5,000). In operation since 1893; owned by municipality. **Supply:** by gravity from Chicoutimi river, 1½ miles distant. **Distribution:** 5 miles of C. I. mains, 3 in. to 12 in.; 45 hydrants; 700 services, ½ in. galv. iron and lead pipe. **Pressure:** 120 lbs. **Financial:** total cost of plant, \$250,000; annual maintenance (exclusive of interest), \$2,000; revenue from consumers, \$16,000; from public uses, \$1,000. **Rates:** flat rate, \$8 per family; bath-room, \$3. Officer in charge: J. A. Claveau, Town Engineer.

**COATICOOK**, Stanstead co., (3,000). In operation since 1882; owned by Coaticook Water Co. **Supply:** by gravity from springs flowing into 3 reservoirs, 1 mile distant. **Reservoirs:** three, 40 ft.  $\times$  80 ft.; 15 ft.  $\times$  15 ft.; and 24 ft.  $\times$  24 ft. respectively, all 10 ft. deep. **Distribution:** 5 miles of C. I. and W. I. mains, 1½ in. to 8 in.; 27 hydrants; 425 services, ½ in. iron pipe. **Pressure:** 80 to 100 lbs. **Consumption:** 250,000 gal. **Financial:** cost of supply plant, \$15,000; cost of distribution system, \$65,000; annual maintenance, \$1,500; revenue from consumers, \$5,000; from public uses, \$600. **Rates:** flat rate, \$6 to \$15 per family. Officer in charge: D. Moyle.

An auxiliary pumping plant is being installed, to be supplied from springs, with an emergency intake from the river. Another system, also supplied from springs, serves a small portion of the town.

**COMO and HUDSON**, Vaudreuil co., (1,800). In operation since 1909; owned by Spring Water Co. Ltd. **Supply:** by gravity from springs,

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1 mile distant. **Reservoirs:** 2, one, 20 ft.  $\times$  30 ft. and the other, 50 ft.  $\times$  25 ft. **Distribution:** 7 miles of wooden mains, 4 in. and 6 in.; 324 services. **Pressure:** 50 lbs. **Rates:** flat rate, \$10 for first tap. Officer in charge: L. Hodgson, Superintendent.

**CONTRECOEUR**, Verchères co., (660). In operation since 1903; owned by municipality. **Supply:** pumped from St. Lawrence river to reservoir or directly into mains; electric and steam power used, 3 h.p. **Reservoir:** 16 ft.  $\times$  28 ft. **Distribution:** 1½ miles of galv. iron mains, 2 in. to 4 in.; 18 hydrants; 150 services, ½ in. to 1 in. **Financial:** total cost of plant, \$8,000; annual maintenance, \$800; revenue from consumers, \$1,000; from public uses, \$100. **Rates:** flat rate, \$3.50 to \$8 per dwelling. Officer in charge: J. B. D'Ony, Secretary-treasurer.

**COOKSHIRE**, Compton co., (1,000). In operation since 1893; owned by municipality. **Supply:** by gravity from springs, 2 miles distant; also an emergency plant to pump water from river (not often used). **Reservoir:** 1, of 488,000 gal. capacity. **Distribution:** 4½ miles of mains, 1 in. to 10 in.; 36 hydrants; 152 services, ½ in. pipe. **Pressure:** 45 to 130 lbs. **Financial:** total cost of plant, including sewers, \$44,700; annual maintenance, \$600; revenue, \$1,600. **Rates:** flat rate, \$6 for first tap and \$6 for bath-room. Officer in charge: E. S. Baker, Secretary-treasurer.

**COWANSVILLE**, Missisquoi co., (1,000). In operation since 1897; owned by municipality. **Supply:** by gravity from springs, 2½ miles distant, with an auxiliary 35 h.p. gasoline plant to pump from Yamaska river. **Purification:** mechanical filter used when pumping from river. **Reservoir:** one of 200,000 gal. capacity. **Distribution:** 7 miles of C. I. mains, 4 in. to 12 in.; 42 hydrants; 160 services, lead and galv. iron pipes. **Pressure:** 76 lbs. **Consumption:** 60,000 gal. **Financial:** total cost of plant, \$25,000; annual maintenance, \$1,000; interest, \$900; revenue, \$1,600. **Rates:** flat rate, \$6 per tap; bath-room, \$6. Officer in charge: J. McCabe, Inspector.

**DANVILLE**, Richmond co., (1,500). In operation since 1908; owned by Danville Water Co. **Supply:** pumped from brook which is fed by numerous springs, 2½ miles distant, directly into mains and reservoir; water-power used, maximum, 20 h.p., average, 12 h.p. **Filter:** sand and gravel filter used. **Reservoir:** 1, of 70,000 gal. capacity. **Distribution:** 5½ miles of C. I. mains, 4 in. and 6 in.; 30 hydrants; 200 services, ½ in. and 1 in. galv. iron pipe. **Pressure:** 25 to 100 lbs. **Consumption:** 30,000 gal. **Financial:** cost of supply plant, \$6,000; cost of distribution system, \$36,000; annual maintenance, \$500; interest, \$1,700; revenue

from consumers, \$2,500; from public uses, \$550. **Rates:** flat rate, \$8 and upward per dwelling; bath-room, \$7; meter rate, 12c. to 30c. per 1,000 gal.

**DESCAILLONS**, Lotbinière co., (2,000). In operation since 1908; owned by municipality. **Supply:** pumped from St. Lawrence river into mains or tank; steam power used, 25 h.p. **Reservoir:** 1, of 42,000 gal. capacity. **Distribution:** 2 miles of C. I. mains, 4 in. and 6 in.; 40 hydrants; 300 services,  $\frac{1}{2}$  in. pipe. **Financial:** total cost of plant, \$30,000; annual maintenance, \$4,000; revenue, \$3,000. **Rates:** flat rate, \$6 for first tap.

**D'ISRAELI**, Wolfe co., (1,000). In operation since 1897; owned by D. Binet. **Supply:** by gravity from springs, 2 miles distant, with a 6 h.p. auxiliary gasoline plant pumping water from St. Francis river. **Reservoir:** one of 180,000 gal. capacity. **Distribution:** 7 miles of W. I. mains, 1 in. to 5 in.; 150 services. **Pressure:** 12 lbs. **Financial:** cost of supply plant, \$7,800; cost of distribution system, \$8,000; annual maintenance, \$300; revenue from consumers \$1,270; from public uses \$55. **Rates:** flat rate, \$7 for first tap, bath-room, \$6.

**DIXVILLE**, Stanstead co., (500). In operation since 1906; owned by Dixville Water Works Co. **Supply:** by gravity from springs, 1,000 ft. distant on west side of river and a separate system by gravity from springs on east side of river. **Reservoirs:** 2, of 1,600 and 6,500 gal. capacity, respectively. **Distribution:** 1½ miles of 1½ in. galv. iron pipe; 30 services. **Pressure:** 20 lbs. on west side and 250 lbs. on east side. **Financial:** total cost of plant, \$900; annual maintenance, \$15; annual revenue, \$200. **Rates:** flat rate, \$6 for first tap, \$4 for additional. Officer in charge: William L. Gilson.

**DORION**, Vaudreuil co., In operation since 1897; the system is owned jointly by the municipalities of Dorion and Vaudreuil, and supplies a total population of 1,200. **Supply:** by gravity from springs, 8 miles distant. **Reservoir:** 1, of 47,000 gal. capacity. **Distribution:** 9 miles o. C. I. mains, 4 in. to 8 in.; 1 hydrant; 100 services,  $\frac{1}{2}$  in. to  $\frac{3}{4}$  in. lead pipe. **Pressure:** 25 to 40 lbs. **Financial:** total cost of plant for both municipalities, \$60,000; annual maintenance, \$200; interest, \$3,600; revenue, \$2,800. **Rates:** flat rate, \$6 and upward, plus 30c. per \$100 on assessment. Officer in charge: J. B. A. Favreau, Secretary-treasurer.

**DORVAL**, Jacques Cartier co., (1,314). In operation since 1914; owned by municipality. **Supply:** pumped from lake St. Louis, 1,200 ft. from shore

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to elevated tank, steam and electric power used, maximum, 75 h.p.; average, 30 h.p.; water treated with hypochlorite of lime. **Reservoirs:** 1 tank of 64,000 gal. capacity. **Distribution:** 3 miles of C. I. mains, 6 in. to 12 in.; 42 hydrants; lead services being put in. **Pressure:** ordinary, 65 lbs.; fire, 90 lbs. **Financial:** cost of supply plant, \$16,500; cost of distribution system, \$42,000. **Rates:** to be flat rate. Officer in charge, Z. Venette.

**DRUMMONDVILLE**, Drummond co., (2,500). In operation since 1896; owned by municipality. **Supply:** pumped from St. Francis river,  $\frac{1}{2}$  mile distant, directly into mains; water-power used, maximum, 80 h.p., average, 40 h.p. **Distribution:** 4 miles of C. I. mains, 4 in. and 6 in.; 30 hydrants; 400 services. **Pressure:** ordinary, 50 lbs.; fire, 125 lbs. **Financial:** cost of supply plant, \$50,000; cost of distribution system, \$15,000; annual maintenance, \$600; revenue, \$4,500. **Rates:** flat rate, \$7.50 per dwelling. Officer in charge, J. Denosiers.

**EASTMAN**, Brome co., (250). In operation since 1913 (private system since 1880). Owned by municipality. **Supply:** by gravity from Orford lake, 3 miles distant. **Reservoirs:** 3 small reservoirs. **Distribution:** 3 miles of wooden and C. I. mains, 4 in. to 10 in.; 19 hydrants; 50 services. **Pressure:** 40 lbs. **Financial:** total cost of plant, \$18,000; annual revenue \$450. A private system is supplied by gravity from springs,  $\frac{1}{2}$  mile distant. This system has  $\frac{1}{2}$  mile of 3 in. galv. iron mains, from which 50 services are taken and has cost \$1,000.

**FARNHAM**, Mitisquoi co., (4,000). In operation since 1892; owned by municipality. **Supply:** pumped from Yamaska river, near centre of town, directly into mains; electric power used, maximum, 100 h.p., average, 30 h.p.; steam pump as an auxiliary. **Distribution:** 7 miles of C. I. and W. I. mains, 2 in. to 10 in.; 46 hydrants; 870 services,  $\frac{1}{2}$  in. lead pipe. **Pressure:** ordinary, 65 lbs.; fire, 130 lbs. **Consumption:** 800,000 gal. **Financial:** cost of supply plant, \$35,000; cost of distribution system, \$90,000; annual maintenance, \$1,500; interest, \$1,500; revenue from consumers, \$9,500. **Rates:** flat rate, \$6 to \$13 per dwelling based on assessment. Officer in charge: W. F. Girard, Superintendent.

**FRASERVILLE**, Temiscouata co., (8,000). In operation since 1897; owned by municipality. **Supply:** by gravity from lake Hickson and Green river, 8 miles distant; an emergency steam pumping station of 30 h.p. capacity. **Reservoirs:** 1, of 310,000 gal. capacity and 1 stand-pipe, 88,000 gal. capacity. **Distribution:** 23 miles of C. I. mains,

4 in. to 24 in., 117 hydrants, 1,125 services, 3 in. to 1½ in. lead pipe. **Pressure:** 15 to 125 lbs. **Consumption:** 800,000 gal. **Financial:** cost of supply plant, \$175,000; cost of distribution system, \$250,000; annual maintenance, \$3,500; revenue, \$25,000. **Rates:** flat rate, \$7 to \$20 per dwelling, meter rate, 7½ to 10¢ per 1,000 gal. **Officer in charge:** Georges Ouimet, City Engineer.

**GATINEAU POINT**, Ottawa co., (1,700). In operation since 1901 owned by municipality. **Supply:** pumped from Gatineau river to reservoir; electric power used, 7½ h.p. **Reservoir:** 1 of 35,000 gal. capacity. **Distribution:** 3 miles of C. I. mains, 3 in. to 6 in.; 15 hydrants; 323 services, ½ in. lead pipe. **Pressure:** ordinary 40 lbs., fire, 80 to 100 lbs. **Consumption:** 25,000 gal. **Financial:** total cost of plant, \$50,000; annual maintenance, \$2,000; revenue, \$2,500. **Rates:** flat rate, \$7.80 per dwelling. **Officer in charge:** E. Charette, Superintendent.

**GENTILLY**, Nicolet co., (800). In operation since 1900. Privately owned. **Supply:** by gravity from springs. **Distribution:** 3½ miles of steel mains, ½ in. to 2 in.; 40 hydrants; galv. iron services. **Pressure:** 65 lbs. **Consumption:** 200,000 gal. **Financial:** total cost of plant, \$13,000; annual maintenance, \$150; revenue, \$1,700. **Rates:** flat rate, \$6 per tap.

**GRACEFIELD**, Ottawa co., (135). In operation since 1911, owned by municipality. **Supply:** pumped from Gatineau river, 500 ft. distant, to reservoir; gasoline engine w. 1.4 h.p. **Reservoir:** 1, of 8,000 gal. capacity. **Distribution:** ½ mile of iron mains, 1 in. and 2 in.; 23 services, 1 in. pipe. **Financial:** cost of plant, \$3,000; annual maintenance, \$60; revenue, \$318. **Rates:** flat rate, \$12 and upward per dwelling. **Officer in charge:** E. Mercier, Secretary-treasurer.

**GRANBY**, Shefford co., (5,000). In operation since 1897, owned by municipality. **Supply:** by gravity from Shefford Mountain lake, 5 miles distant. **Reservoir:** 100 ft. × 100 ft. **Distribution:** 6 miles of W. I. mains, 4 in. to 6 in.; 50 hydrants; 1,500 services, lead pipe. **Pressure:** ordinary, 70 lbs.; fire, 70 to 100 lbs. **Financial:** total cost of plant, \$100,000; annual maintenance, \$1,000; revenue, \$11,000. **Rates:** \$6 to \$10 per consumer, meter rate, 15¢ to 18¢ per 1,000 gal. **Officer in charge:** W. D. Bradford, President of Committee.

**GRAND'MÈRE**, Champlain co., (5,500). In operation since 1899; owned by municipality. **Supply:** by gravity from a lake, 6½ miles distant.

**Reservoir:** 1, small. **Filter:** charcoal filter used with good results. **Distribution:** 7 miles of C. I. mains, 8 in. and 10 in.; 32 hydrants; 600 services, lead and iron pipes. **Financial:** cost of supply plant, \$65,000; cost of distribution system, \$10,000; annual maintenance, \$1,200; revenue from consumers, \$11,000; from public uses, \$1,000. **Rates:** flat rate, \$8 per tap. Officer in charge: P. Lefebvre.

**HÉBERTVILLE**, Lake St. John co., (300). In operation since 1908. 3 systems privately owned. **Supply:** pumped from des Aulnaies river,  $\frac{1}{2}$  mile distant, to reservoirs, wind power and gasoline engine used. **Reservoirs:** 3, having a total capacity of 16,000 gal. **Distribution:** 1 mile of galv. iron mains, 2 in. and 3 in.; 80 services. **Pressure:** 10 lbs. **Financial:** total cost of plant, \$5,000; annual maintenance, \$100. **Rates:** flat rate, \$10 per dwelling. Officer in charge: A. P. Hudon, Secretary-treasurer.

**HÉBERTVILLE STATION**, Lake St. John co., (1,350). In operation since 1911; owned by municipality. **Supply:** by gravity from a lake, 5 miles distant. **Distribution:** 5 miles of C. I. mains, 4 in. to 10 in.; 12 hydrants, 395 services,  $\frac{1}{2}$  in. and  $\frac{1}{4}$  in. pipe. **Pressure:** 65 lbs. **Financial:** total cost of plant, \$40,000; annual maintenance, \$250; interest, \$2,873; revenue, \$3,500. **Rates:** flat rate \$2 and upward per dwelling. Officer in charge: J. M. Hudon, Secretary-treasurer.

**HUDSON**, (See *Como*)

**HULL**, Ottawa co., (21,000). In operation since 1885; hydraulic plant installed in 1900; owned by municipality. **Supply:** pumped from Ottawa river,  $\frac{1}{2}$  mile distant, directly into mains; water power used, 250 h.p.; steam auxiliary pumping plant. **Distribution:** 19 miles of C. I. mains, 3 in. to 20 in.; 220 hydrants; 4,500 services, lead pipe. **Pressure:** ordinary, 65 lbs.; fire, 100 lbs. **Consumption:** 5,000,000 gal. **Financial:** cost of supply plant, \$200,000; cost of distribution system, \$500,000; annual maintenance, \$4,500; interest, \$4,500; revenue, \$50,000. **Rates:** flat rate on assessment basis, .5 per cent and upward; meter rate, 15c per 1,000 gal. Officer in charge: J. P. A. Laforest, City Engineer.

**HUNTINGDON**, Huntingdon co., (1,300). In operation since 1896; owned by municipality. **Supply:** pumped from Chateauguay river,  $\frac{1}{2}$  mile distant, into tank; steam power used; boilers and pumps in duplicate. **Filter:** charcoal filter used with good results. **Reservoir:** 1, of 60,000 gal. capacity. **Distribution:** 4½ miles of mains; 36 hy-

drants; 400 services, iron and lead pipe. **Pressure:** ordinary, 35 lbs.; fire, 100 lbs. **Consumption:** 75,000 gal. **Financial:** total cost of plant, \$80,000; annual maintenance, \$2,000; revenue, \$3,600. **Rates:** flat rate on assessment basis, \$5 to \$10 per dwelling. Officer in charge: James Gordon Dunn.

**IBERVILLE**, Iberville co., (2,000). In operation since 1883; owned by municipality. **Supply:** pumped from Richelieu river, 400 ft. distant, directly into mains; steam power used, average, 40 h.p.; maximum, 60 h.p.; water treated with hypochlorite of lime. **Distribution:** 6 miles of C. I. mains, 4 in. to 6 in.; 65 hydrants; 550 services. **Pressure:** ordinary, 80 lbs.; fire, 130 lbs. **Consumption:** 100,000 gal. **Financial:** cost of supply plant, \$50,000; cost of distribution system, \$50,000; annual maintenance, \$3,000; revenue from consumers, \$4,000; from public uses, \$1,000. **Rates:** flat rate, \$6 per year plus .25 per cent, on assessment; meter rate, 12c. to 16c. per 1,000 gal. Officer in charge: J. Goyette.

**JOLIETTE**, Joliette co., (7,900). In operation since 1881; owned by municipality. **Supply:** pumped from l'Assomption river, directly into mains; water-power used, maximum, 100 h.p., average, 40 h.p.; has auxiliary electric and steam pumping plants for emergency. **Distribution:** 10 miles of C. I. mains, 3 in. to 8 in.; 89 hydrants; 1,650 services,  $\frac{1}{2}$  in. and  $\frac{3}{4}$  in. lead pipe. **Pressure:** ordinary, 50 lbs.; fire, 120 lbs. **Consumption:** 1,500,000 gal. **Financial:** total cost of plant, \$100,000; annual maintenance, \$2,700; revenue, \$17,000. **Rates:** flat rate, \$5 and upward per dwelling based on rental value; \$3 for bath-room. Officer in charge: Pierre Laforest, Superintendent.

**KNOWLTON**, Brome co., (1,000). In operation since 1895; owned by municipality. **Supply:** by gravity from springs,  $1\frac{1}{2}$  miles distant; auxiliary supply pumped from brook; steam power used, 25 h.p. **Reservoirs:** 2, one, 100 ft.  $\times$  100 ft. and the other, 100 ft.  $\times$  50 ft. **Distribution:** 3 miles of C. I. mains, 4 in. to 8 in.; 30 hydrants; 250 services, iron and lead pipe. **Pressure:** ordinary, 87 lbs.; fire, 95 lbs. to 100 lbs. **Financial:** total cost of plant, \$25,000; annual maintenance, \$200; interest, \$909; revenue, \$2,600. **Rates:** flat rate, \$8 per dwelling; bath-room, \$6. Officer in charge: S. U. Courtney, Superintendent.

**LABELLE**, Labelle co., (700). In operation since 1905; owned by municipality. **Supply:** by gravity from lake Blanc,  $2\frac{1}{2}$  miles distant. **Distribution:** 3 miles of iron mains, 2 in. and 3 in.; 9 hydrants.

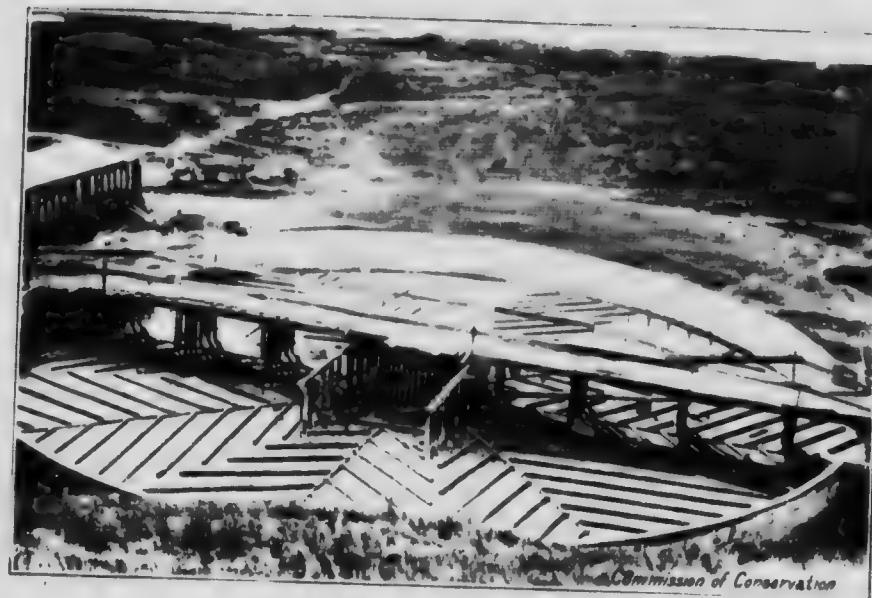
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Lethbridge Sewage Disposal Works - Filter before Filling



Same as Above - Showing Method of Filling. Chlorinating House and Humus Tank in Back-  
ground



**Financial:** annual maintenance, \$500; interest, \$716; revenue, \$1,100.  
**Rates:** flat rate, \$7 per dwelling. Officer in charge: J. Ledoux, Secretary-treasurer.

**LAC AU SAUMON**, Matane co., (800). In operation since 1908; privately owned. **Supply:** by gravity from spring, 1/2 mile distant. **Reservoir:** 1, 20 ft.  $\times$  30 ft. **Distribution:** 1 1/2 miles of C. I. and W. I. mains, 1 1/2 in. and 3 in.; 56 services. **Financial:** a. revenue, \$420. b. flat rate, \$5 for first tap. Owned by A. L. Lévy & Son.

**LACHENAIE**, L'Assomption co. (See under *Charlemagne*.)

**LACHINE**, Jacques Cartier co., (14,800). In operation since 1889; owned by municipality. **Supply:** pumped from St. Lawrence river, 800 ft. distant, directly into mains; electric and steam power used, average, 125 h.p., maximum, 450 h.p.; pumps and engines are in duplicate. **Distribution:** 23 1/2 miles of C. I. mains, 4 in. to 20 in.; 158 hydrants; 1,240 services, 1/2 in. lead pipe. **Pressure:** ordinary, 65 lbs.; fire, 90 lbs. **Consumption:** 3,000,000 gal. **Financial:** cost of supply plant, \$70,139; cost of distribution system, \$236,766; annual maintenance \$4,000; interest, \$2,000; revenue from consumers, \$27,000; from public uses, \$3,000. **Rates:** flat rate, 5 per cent of rental value; meter rate, 5c. to 15c. per 1,000 gal. Officer in charge: V. H. Dupont, City Engineer.

**LACHUTE**, Argenteuil co., (2,000). In operation since 1896; owned by municipality. **Supply:** by gravity from McOuat brook, 3 miles distant. **Distribution:** 10 1/2 miles of C. I. mains, 3 in. to 8 in.; 32 hydrants; 460 services, 1/2 in. lead pipe. **Pressure:** 48 lbs. **Financial:** total cost of plant, \$65,000; annual maintenance, \$400; revenue, \$4,500. **Rates:** flat rate, \$6 plus 1/4 per cent on assessment. Officer in charge: R. McArthur.

**L'ANNONCIATION**, Labelle co., (600). In operation since 1909; owned by municipality. **Supply:** by gravity from Paquette lake, 1/2 mile distant. **Distribution:** 1/2 mile of C. I. mains, 4 in. to 10 in.; 12 hydrants; 120 services, lead pipe. **Pressure:** 35 lbs. **Financial:** total cost of plant, \$16,000; annual maintenance, \$400; interest, \$800; revenue, \$1,300. **Rates:** flat rate, \$10 per dwelling. Officer in charge: P. Morissette, Secretary-treasurer.

**LA PATRIE**, Compton co., (300). In operation since 1902; 2 systems, privately owned. **Supply:** by gravity from springs, 1,000 ft. distant.

**Reservoirs:** 3, of 1,300 gal., 6,400 gal., and 16,000 gal. capacity, respectively. **Distribution:**  $\frac{1}{2}$  mile of C. I. and W. I. mains, 1 in. to 4 in.; 50 services. **Pressure:** 15 to 40 lbs. **Financial:** total cost of plant, \$3,500; annual maintenance, \$50; interest, \$175; revenue, \$400. **Rates:** flat rate, \$6 to \$12 per dwelling. **Owners:** E. Hallé, and A. W. Giard.

**LAPRAIRIE**, Laprairie co., (2,377). In operation since 1905; owned by A. A. Demers. **Supply:** pumped from St. Lawrence river,  $\frac{1}{2}$  mile distant, to reservoir and mains; steam and electric power used, 40 h.p. **Reservoir:** 1, of 49,000 gal. capacity. **Distribution:**  $6\frac{1}{2}$  miles of C. I. mains, 4 in. to 12 in.; 20 hydrants; 525 services. **Pressure:** ordinary, 45 lbs.; fire, 80 lbs. **Consumption:** 275,000 gal. **Financial:** total cost of plant, \$60,000; annual maintenance, \$1,500; revenue from consumers, \$4,000; from public uses, \$3,000. **Rates:** flat rate, \$6.50 and upward per dwelling; bath-room, \$3; meter rate, 17c. per 1,000 gal.

**L'ASSOMPTION**, L'Assomption co., (1,350). In operation since 1914; owned by municipality. **Supply:** pumped from spring and l'Assomption river,  $\frac{1}{2}$  mile distant, to reservoir, electric power and gasoline engine used, 18 h.p. **Reservoir:** 1, 22 ft.  $\times$  14 ft. **Distribution:** 3 miles of galv. iron mains, 1 $\frac{1}{2}$  in. to 6 in.; 31 hydrants; 250 services, galv. iron pipe. **Pressure:** ordinary, 37 lbs.; fire, up to 120 lbs. **Consumption:** 85,000 gal. **Financial:** total cost of plant, \$6,500; annual maintenance, \$800; interest, \$1,200; revenue, \$2,600. **Rates:** flat rate.

**LA TUQUE**, Champlain co., (3,500). In operation since 1910; owned by municipality. **Supply:** pumped to reservoir from St. Maurice river, 1 mile distant; electric power used, average 50 h. p., maximum, 60 h. p. **Distribution:** 5 miles of steel mains, 4 in. to 8 in.; 40 hydrants; 300 services. **Pressure:** ordinary, 60 lbs.; fire, 80 lbs. **Consumption:** 75,000 gal. **Financial:** total cost of plant \$90,000; annual maintenance, \$2,000; interest \$6,300; revenue \$8,000. **Rates:** flat rate, \$15 per dwelling. Officer in charge: L. Massicotte.

**LAURENTIDES**, L'Assomption co., (1,140). In operation since 1894; owned by municipality. **Supply:** pumped from l'Achigan river, 1,500 ft. distant to reservoir and mains; steam power used, 40 h.p. to 50 h.p.; boilers and pumps are in duplicate. **Distribution:** 4 miles of C. I. and W. I. mains, 1 in. to 6 in.; 16 hydrants; 220 services, galv. iron pipe. **Pressure:** ordinary, 20 lbs; fire 100 lbs. **Consumption:** 35,000 gal. **Financial:** cost of plant, \$20,000; annual maintenance,

**\$1,500; interest, \$1,000; revenue from consumers, \$2,300; from public uses, \$200. Rates: flat rate, \$6 per dwelling. Officer in charge: S. Goulet, Secretary-treasurer.**

**LAURIERVILLE**, Megantic co., (400). In operation since 1894; privately owned. **Supply:** by gravity from springs, 2 miles distant. **Distribution:** wooden and iron mains. **Pressure:** 20 lbs. **Financial:** annual maintenance, \$100; interest \$325; revenue, \$440. **Rates:** flat rate. Owned by Gingras Bros.

**LAUZON**, Lévis co., (3,800). In operation since 1908; owned by E. Ruel. **Supply:** partly by gravity and partly pumped from springs,  $\frac{1}{2}$  mile distant. **Reservoirs:** 2, total capacity 400,000 gal. **Distribution:** 2½ miles of C. I. mains, 6 in.; 14 hydrants; 450 services,  $\frac{1}{2}$  in. to 1 in. galv. iron. **Pressure:** ordinary, 150 lbs.; fire, 225 to 275 lbs. **Consumption:** 135,000 gal. **Financial:** total cost of plant, \$45,000; annual maintenance, \$1,500; total revenue, \$3,000. **Rates:** flat rate, \$6 per dwelling, bath-room, \$2.50.

**LAWRENCEVILLE**, Shefford co., (200). In operation since 1904; privately owned. **Supply:** by gravity from springs, 2,000 ft. distant. **Reservoirs:** 2, 12 ft.  $\times$  12 ft. each. **Distribution:** 1 mile of iron mains, 1½ in. and 2 in.; 30 services, galv. iron pipe. **Pressure:** 40 lbs. **Financial:** cost of plant, \$1,800; annual maintenance, \$20; revenue \$225. **Rates:** flat rate, \$7.20 per dwelling. Owned by Zoël Gervais.

**LECLERCVILLE**, Lotbinière co., (400). In operation since 1889; owned by N. Beaudet. **Supply:** by gravity from a spring, 800 ft. distant. **Reservoirs:** two, 24 ft.  $\times$  12 ft. and 12 ft.  $\times$  12 ft. **Distribution:** 1 mile of W.I. mains; 1 hydrant, 70 services,  $\frac{1}{2}$  in. galv. iron. **Pressure:** 40 lbs. **Consumption:** 1,200 gal. **Financial:** total cost of plant, \$2,000; annual maintenance, \$25; revenue from consumers, \$350, from public uses, \$18. **Rates:** flat rate, \$5 per dwelling.

**LENNOXVILLE**, Sherbrooke co., (1,500). In operation since 1898; owned by Lennoxville Water Works Co. **Supply:** by gravity from spring, 1 mile distant; has an auxiliary electric and steam plant to pump water from St. Francis river. **Reservoirs:** 2, of 5,000 gal. and 450,000 gal. capacity, respectively. **Distribution:** 3 miles of C. I. mains, 4 in. to 8 in.; 26 hydrants; 300 services,  $\frac{1}{2}$  in. pipe. **Pressure:** ordinary, 80 lbs.; fire, 70 lbs. **Consumption:** 150,000 gal. **Financial:** cost of supply plant, \$6,000; cost of distribution system, \$34,000; annual maintenance, \$1,800; revenue from consumers, \$3,000; from public uses, \$345. **Rates:** flat rate, \$8 for first tap and \$3 for additional; \$4 for bath-room.

**LEVIS, Lévis co.**, (7,500). In operation since 1906; owned by municipality.

**Supply:** pumped to reservoir from St. Lawrence river,  $\frac{1}{2}$  mile distant; electric power used, 150 h.p.; have a steam auxiliary pumping plant.

**Purification:** hypochlorite of lime treatment. **Reservoir:** 1, of 100,000 gal. capacity. **Distribution:** 13 miles of C. I. mains, 6 in. to 12 in.; 127 hydrants; 1,100 services,  $\frac{3}{4}$  in. galv. iron and lead pipe. **Pressure:** ordinary, 135 lbs.; fire, 175 lbs. **Consumption:** 700,000 gal. **Financial:** total cost of plant including sewers, \$322,000; annual maintenance including interest, \$34,000; revenue from consumers, \$36,000 from public uses, \$1,200. **Rates:** flat rate,  $12\frac{1}{2}$  per cent on rental value; also have meter rate. Officer in charge: C. Lessard, Municipal Engineer.

**LITTLE METIS, Rimouski co.**, no public water system; individual supplies are taken from a spring, in some cases a few houses being supplied through the same pipe line.

**LONGUEUIL, Chambly co.**, (5,000). In operation since 1876; owned by municipality. **Supply:** pumped from St. Lawrence river, 1,700 ft. distant to reservoir and mains; steam and electric power used, 30 h.p. **Reservoir:** 23 ft.  $\times$  31 ft. **Purification:** hyposulphite treatment. **Distribution:**  $10\frac{1}{2}$  miles of mains, 4 in. to 12 in.; 66 hydrants; 900 services, lead pipe. **Pressure:** ordinary, 50 lbs.; fire, 100 lbs. **Consumption:** 450,000 gal. **Financial:** total cost of plant, \$160,000; annual maintenance, \$5,500; interest, \$6,000; revenue, \$12,125. **Rates:** flat rate, 8 to 15 per cent of rents. Officer in charge: E. F. Léveillé, Clerk.

**LORETTEVILLE, Quebec co.**, (1,500). In operation since 1907; owned by "La Compagnie d'Aqueduc de la Jeune Lorette." **Supply:** by gravity from a lake,  $\frac{3}{4}$  mile distant. **Filter:** gravel filter used with good results. **Reservoir:** 1, of 33,000 gal. capacity. **Distribution:** 6 miles of C. I. and W. I. mains, 2 in. to 6 in.; 13 hydrants; 200 services. **Pressure:** 40 lbs. **Financial:** total cost of plant, \$22,000; annual maintenance, \$200; revenue, \$1,300. **Rates:** flat rate, \$6 per dwelling; bath-room, \$2.00.

**LOUISEVILLE, Maskinonge co.**, (3,000). In operation since 1894; owned by municipality. **Supply:** by gravity from springs, 9 miles distant. **Distribution:** 19 miles of C. I. and W. I. mains, 4 in. to 8 in.; 14 hydrants; 550 services, lead and galv. iron pipes. **Pressure:** ordinary, 60 lbs.; fire, 130 lbs.; **Consumption:** 150,000 gal. **Financial:** cost of supply plant, \$11,500; cost of distribution system, \$79,000; annual main-

## WATER-WORKS OF QUEBEC

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tenance, \$1,000; interest, \$5,000; revenue, \$6,500; **Rates**: flat rate, \$6 and upward per dwelling. Officer in charge: L. D. Caron, Secretary-treasurer.

**MAGOG**, Stanstead co., (4,000). In operation since 1906; owned by municipality. **Supply**: pumped from lake Memphremagog, 1 mile distant, to reservoir; electric power used, average, 75 h.p., maximum, 100 h.p.; pumping apparatus is in duplicate. **Reservoir**: 60 ft.  $\times$  40 ft. **Distribution**: 5 miles of C. I. mains, 8 in. and 10 in.; 32 hydrants; 600 services,  $\frac{1}{2}$  in. and 1 in. pipes. **Pressure**: ordinary, 135 lbs.; fire, 90 lbs. **Financial**: cost of supply plant, \$20,000; cost of distribution system, \$30,000; annual maintenance, \$2,659; interest, \$1,646; revenue, \$4,704. **Rates**: flat rate, \$5 and \$7 per dwelling; bath-room, \$6. Officer in charge: C. Lauzon, Superintendent.

**MAISONNEUVE**, Hochelaga co., In operation since 1890, owned by Montreal Water & Power Co., (See under *Montreal*.)

**MARIEVILLE**, Rouville co., (1,800). In operation since 1903; owned by municipality. **Supply**: by gravity from Rougemont lake and springs, 6 miles distant, and pumped from artesian well,  $\frac{1}{2}$  mile distant, to elevated tank and mains; electric power used, 10 h.p. **Reservoirs**: one of 19,000 gal. and elevated tank of 75,000 gal. capacity. **Distribution**:  $9\frac{1}{2}$  miles of C. I. mains, 4 in. and 6 in.; 40 hydrants; 350 services. **Pressure**: ordinary, 55 lbs.; fire, 100 lbs. (electric motor used to increase pressure in case of fire). **Consumption**: 50,000 gal. **Financial**: total cost of plant, \$65,000; annual maintenance, \$1,000; revenue, \$3,500. **Rates**: flat rate, \$7 per dwelling; bath-room \$3. Officer in charge, E. Ostigny, Secretary-treasurer.

**MASSUEVILLE**, (St. Aimé), Richelieu co., (800). In operation since 1899; privately owned. **Supply**: pumped from Yamaska river, 1,200 ft. distant, to reservoir; gasolene engine used, 8 h.p. **Reservoir**: 22 ft.  $\times$  13 ft. **Distribution**: 6 miles of C. I. mains, 2 in. and 4 in. 200 services. **Pressure**: 15 lbs. **Financial**: total cost of plant, \$12,800; annual maintenance, \$200; revenue, \$1,400. **Rates**: flat rate, \$6 per dwelling. Owned by Philias Rivard.

**MATANE**, Matane co., (700) is supplied with water from 5 privately owned systems. **Supply**: by gravity from springs, 600 ft. to 2,000 ft. distant. **Distribution**:  $1\frac{1}{2}$  miles of mains; 7 hydrants; 70 services.

**MEGANTIC**, Compton co., (2,904). In operation since 1901; owned by municipality. **Supply**: by gravity from springs, 5 miles distant, with

an emergency pumping plant from lake Megantic; steam power used, 50 h.p. **Reservoirs:** 2, of 20,000 gal. and 180,000 gal. capacity respectively. **Distribution:** 6 miles of C. I. mains, 4 in. to 8 in.; 34 hydrants; 600 services, lead and galv. iron pipes. **Pressure:** ordinary, 85 lbs.; fire, 150 lbs. **Consumption:** 90,000 gal. **Financial:** cost of gravity supply plant, \$25,000; cost of pumping plant, \$7,000; cost of distribution system, \$35,200; annual maintenance, \$706; interest, \$1,664; revenue from consumers, \$4,220; from public uses, \$150. **Rates:** flat rate, \$6 for first tap; \$5 for bath-room. Officer in charge: J. Roy, Town Clerk.

**MONTEBELLO**, Labelle co., (1,200). In operation since 1870; owned by Aubrey & Chauvin. **Supply:** by gravity from a spring,  $\frac{1}{2}$  mile distant. **Reservoirs:** 3, small and 1, of 112,000 gal. capacity. **Distribution:** 2 miles of galv. iron pipe, 1 $\frac{1}{2}$  in. to 3 in.; 6 hydrants; 140 services,  $\frac{1}{2}$  in. and  $\frac{3}{4}$  in. **Financial:** annual maintenance, \$200; revenue, \$1,200. **Rates:** flat rate, \$7 to \$10 per dwelling.

**MONTMAGNY**, Montmagny co., (3,000). In operation since 1905; owned by "La Cie d'Approvisionnement d'Eau, Ltée." **Supply:** by gravity from a brook and springs, 4 $\frac{1}{2}$  miles distant; also has 100 h.p. steam auxiliary plant to pump water from Bras St. Nicholas river in case of fire. **Reservoir:** 1, of 37,500 gal. capacity. **Distribution:** 11 miles of C. I. mains, 2 in. to 8 in.; 31 hydrants; 550 services,  $\frac{1}{2}$  in. pipe. **Pressure:** ordinary, 70 lbs.; fire, 110 lbs. **Consumption:** 200,000 gal. **Financial:** total cost of plant, \$80,000; annual maintenance, \$1,000; revenue, \$7,000. **Rates:** flat rate, \$8 to \$20 per dwelling, based on assessment. Officer in charge: Jos. Cloutier.

**MONTMORENCY VILLAGE**, Quebec co., (2,500). In operation since 1905; owned by municipality. **Supply:** by gravity from Montmorency river,  $\frac{1}{2}$  mile distant. **Distribution:**  $\frac{1}{2}$  mile of C. I. mains, 3 in. to 8 in.; 22 hydrants; 473 services,  $\frac{1}{2}$  in. to 1 in. galv. iron pipe. **Pressure:** 125 lbs. **Financial:** total cost of plant, including sewerage system, \$35,000; annual maintenance, \$475; interest, \$2,627; revenue \$3,000. **Rates:** flat rate, \$5 for first tap; bath-room, \$4.

**MONTREAL**. The Montreal municipal water works system supplies 23 of the 31 wards of the city; The Montreal Water & Power Co. supply the following 8 wards: St. Paul, St. Henri, Ste. Cunégonde, Côte des Neiges, Laurier, St. Denis, Mount Royal, and DeLorimier. In DeLorimier and Côte des Neiges the piping system is owned by the city.

**MUNICIPAL SYSTEM.** Population supplied, 390,000. In operation since 1857. **Supply:** pumped from St. Lawrence river, above Lachine rapids, 6 miles distant and 1,200 ft. from shore, directly into mains, with overflow to reservoir; steam, hydraulic and electric power used, maximum 3,300 h.p., average, 3,000 h.p.; parts of plant are in duplicate in case of emergencies. **Reservoirs:** 2, of 37,500,000 gal. and 1,750,000 gal. capacity, respectively. **Distribution:** 370 miles of C. I. mains, 4 in. to 36 in.; 2,200 hydrants; 78,000 services,  $\frac{1}{2}$  in. to 1 in. lead pipe, 1 in. to 2 in. galv. iron and 4 in. to 8 in. cast iron. **Pressure:** 35 to 80 lbs. for low-level, and 90 to 125 lbs. for high-level reservoir. **Consumption:** 51,000,000 gal. **Financial:** total cost of plant, \$15,520,330; annual maintenance, \$435,483; revenue, \$1,647,390. **Rates:** flat rate, 4 per cent on yearly rental for dwellings, 4 per cent for places of business, except hotels and restaurants, which are charged 10 per cent; or meter rate at 18 $\frac{1}{2}$ ¢ per 1,000 gal. Officer in charge: T. W. Lesage, Chief Engineer and Superintendent.

A system of slow sand and mechanical filtration is now in course of construction. The mechanical system is being installed to be used as a preliminary filter, if the water should become grossly polluted.

**MONTRÉAL WATER AND POWER CO.** Population supplied, 264,000. In operation since 1891. **Supply:** pumped from St. Lawrence river, 7 miles from main reservoir, directly into mains with overflow to reservoirs; electric power used, average, 3,800 h.p., maximum, 5,000 h.p.; electric pumps are in duplicate and there is a steam auxiliary plant. **Reservoirs:** 3, of 43,000,000 gal., 8,000,000 gal., and 60,000 gal. capacity, respectively. **Filter:** rapid mechanical sand filtration. **Distribution:** 176 miles of C. I. and steel mains, 4 in. to 48 in.; 1,280 hydrants; 48,926 services,  $\frac{1}{2}$  in. lead,  $\frac{1}{2}$  in. to 3 in. galv. iron, 4 in. and larger C. I. pipes. **Pressure:** 60 lbs. to 90 lbs. **Consumption:** 30,000,000 gal. **Rates:** flat rate. Officer in charge: F. H. Pitcher, Manager.

This system also supplies Westmount, Outremont and Maisonneuve.

**INDEPENDENT SYSTEMS.** In addition to the 2 systems described above, the city owns and operates the following:

**AHUNTSIC.** **Supply:** pumped from riv. des Prairies; electric power used, 20 h.p. and connected with the city's system. **Consumption:** 103,000 gal.

**BORDEAUX.** **Supply:** pumped from riv. des Prairies by the Saraguay Electric & Water Co. **Consumption:** 100,000 gal.

**EMARD WARD.** **Supply:** pumped from one of the municipal system conduits; electric power used; 2 pumps of a total capacity of 750,000 gal. per day. **Consumption:** 590,000 gal.

**NOTRE-DAME-DE-GRÂCE.** (5,500). In operation since 1907. **Supply:** pumped from St. Lawrence river at Lachine, directly into mains and to stand-pipes; gas and electric power used, two 80 h.p. gas-power pumps; repumped to higher level by 1,500,000 gal. electrically driven pump. **Reservoirs:** 3 stand-pipes, capacity 70,000 gal. **Distribution:** 24 miles of C. I. mains, 4 in. to 12 in.; 98 hydrants; 1,300 services, lead pipe. **Pressure:** 70 lbs. (low-level), 125 lbs. (high level). **Consumption:** 1,600,000 gal. **Financial:** annual maintenance, \$13,832; revenue, \$44,900.

The towns of St. Pierre and Montreal West are also supplied from above system.

**TÉTREAULTVILLE.** **Supply:** pumped from artesian wells; steam power used; capacity, 200,000 gal.

**MONTRÉAL WEST,** Jacques-Cartier co., (1,300). Distribution system owned by municipality. **Supply:** from Notre-Dame-de-Grâce system (see under *Montreal*). **Reservoirs:** 3 wooden tanks, each 18 ft. diameter by 15 ft. high. **Distribution:** 8 miles of C. I. mains, 4 in. to 8 in.; 58 hydrants; 272 services, 1 in. lead pipe. **Pressure:** ordinary, 70 lbs.; fire, 150 to 200 lbs. **Consumption:** 34,100 gal. **Financial:** annual revenue, \$2,400. **Rates:** meter rate, 14½c. per 1,000 gal., minimum of \$1.50 per quarter.

**MURRAY BAY,** Charlevoix co., (1,440). In operation since 1896; owned by municipality. **Supply:** by gravity from spring, 1 mile distant. **Distribution:** 2½ miles of C. I. mains, 4 in. to 6 in.; 25 hydrants; 215 services. **Pressure:** 111 to 115 lbs. **Financial:** annual maintenance, \$275; revenue, \$3,200. **Rates:** flat rate, \$7 per tap. Officer in charge: J. McNicoll, Secretary-treasurer.

**NEW GLASGOW,** Terrebonne co., (140). In operation since 1884; privately owned. **Supply:** by gravity from Achigan river, 1 mile distant. **Distribution:** 1½ miles of wooden and galv. iron mains, 2½ in. and 3 in.; 1 hydrant; 17 services. **Pressure:** 25 lbs. **Financial:** annual maintenance, \$25; revenue, \$125. **Rate:** flat rate, \$5 per tap.

**NICOLET,** Nicolet co., (2,900). In operation since 1881; owned by municipality. **Supply:** pumped from Nicolet river, 225 ft. distant,

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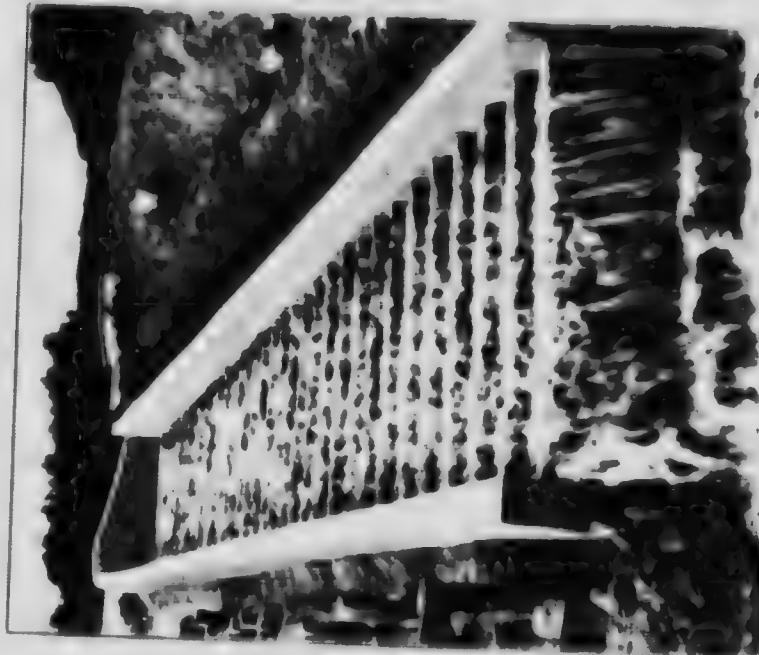
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*City of Edmonton - Tap Viewed from below*



## WATER-WORKS OF QUEBEC

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directly into mains; steam and electric power used, 24 to 50 h.p., pumping apparatus in duplicate. **Distribution:** 5 miles of C. I. and W. I. mains, 1 in. to 6 in., 26 hydrants, 313 services,  $\frac{1}{2}$  in. lead pipe and 1 in. galv. iron pipe. **Pressure:** ordinary, 75 to 80 lbs., fire, 150 to 160 lbs. **Consumption:** 275,000 gal. **Financial:** total cost of plant, \$60,000; annual maintenance, \$600; revenue, \$6,800. **Rates:** flat rate on assessment basis. Officer in charge: J. M. St. Cyr.

**NORTHLATLEY**, Stanstead co., (1,200). In operation since 1902; owned by municipality. **Supply:** by gravity from springs, 1 mile distant, auxiliary supply pumped from Massawippi lake, electric power used, 20 h.p. **Reservoirs:** 3, of 310,000 gal., 44,000 gal. and 36,000 gal. capacity, respectively. **Distribution:** 4 miles of C. I. and W. I. mains, 3 in. to 4 in.; 140 services. **Pressure:** 70 lbs. **Financial:** total cost of plant, \$10,200; annual revenue, \$2,200. **Rates:** flat rate, \$4 and upward per dwelling; meter rate, 15c. per 1,000 gal. Officer in charge: B. A. Blossom, Secretary-treasurer.

**ORMSTOWN**, Châteauguay co. In operation since 1913, owned by municipality. **Supply:** by gravity from springs,  $7\frac{1}{2}$  miles distant. **Distribution:** 10 miles of iron mains, 4 in. to 6 in.; 14 hydrants; 130 services. **Pressure:** ordinary, 105 lbs.; fire 85 lbs. **Financial:** cost of supply plant, \$21,000; cost of distribution system, \$26,000. **Rates:** flat rate, \$6 to \$15 per dwelling on assessment basis.

**PAPINEAUVILLE**, Labelle co., (1,300). In operation since 1887; privately owned. **Supply:** by gravity from a spring,  $1\frac{1}{2}$  miles distant. **Distribution:** 1½ miles of C. I. and W. I. mains, 3 in. and 4 in., 72 services, lead pipe. **Consumption:** 75,000 gal. **Financial:** total cost of plant, \$5,000; annual maintenance, \$500; revenue, \$1,200. **Rates:** flat rate, \$6 to \$12 per dwelling. Owned by T. Bonhomme.

**PIERREVILLE**, Yamaska co., (1,500). In operation since 1905; owned by Lafrenière Bros. **Supply:** pumped from St. Francis river, 1,200 ft. distant to a reservoir; steam power used. **Reservoir:** 1, of 69,000 gal. capacity. **Distribution:** 3 miles of W. I. mains, 2 in. to 4 in.; 24 hydrants; 200 services,  $\frac{1}{2}$  in. and  $\frac{3}{4}$  in. galv. iron pipe. **Pressure:** ordinary 50 lbs.; fire, 100 lbs. **Consumption:** 38,000 gal. **Financial:** total cost of plant, \$12,000; annual maintenance, \$500; revenue, \$2,000. **Rates:** flat rate, \$6 per dwelling.

**PLESSISVILLE**, Megantic co., (1,800). In operation since 1910; owned by municipality. **Supply:** pumped from a lake,  $1\frac{1}{2}$  miles distant,

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to reservoirs; electric power used, 40 h.p., with steam auxiliary plant. **Reservoirs:** 2, one 28 ft.  $\times$  24 ft. and the other 24 ft.  $\times$  20 ft. **Distribution:** 4 miles of C. I. mains, 4 in. to 8 in.; 52 hydrants; 410 services, 1 in. to 1½ in. pipes. **Pressure:** ordinary, 20 lbs.; fire, up to 200 lbs. **Financial:** cost of plant, \$45,000; annual maintenance, \$700; interest, \$950; revenue from consumers, \$3,800. **Rates:** flat rate, \$7 per tap; \$3 for bath-room. Officer in charge: L. R. Guilbault, Secretary-treasurer.

**POINTE-AU-PIC**, Charlevoix co., (2,500). In operation since 1896; owned by private company. **Supply:** by gravity from springs, 2 miles distant. **Reservoirs:** 4, one of which is 125 ft.  $\times$  130 ft.; others are small. **Distribution:** 12 miles of C. I. mains, 3 in. to 5 in.; 8 hydrants; 210 services. **Pressure:** ordinary, 95 lbs.; fire, 60 lbs. **Financial:** cost of supply plant, \$25,000; cost of distribution system, \$10,000; annual maintenance, \$300; interest, \$1,800; revenue from consumers, \$4,500; from public uses, \$300. **Rates:** flat rate, \$10 and upward per dwelling. Officer in charge: Edward Warren, Manager.

**POINTE AUX TREMBLES**, Laval co., (2,500). In operation since 1884; owned by "Cie d'Aqueduc de la Pointe aux Trembles." **Supply:** pumped from St. Lawrence river, ½ mile distant, to reservoir; electric and steam power used, 12 h.p. **Reservoirs:** 2, of 50,000 gal. capacity each. **Purification:** mechanical filtration. **Distribution:** 10 miles of C. I. mains, 4 in. to 8 in.; 35 hydrants; 250 services, ¾ in. galv. iron pipe. **Pressure:** ordinary, 40 lbs.; fire, 75 lbs. **Consumption:** 250,000 gal. **Financial:** cost of supply plant, \$2,000; cost of distribution system, \$80,000; annual maintenance, \$3,000; interest, \$2,500; revenue from consumers, \$6,000; from public uses, \$1,000. **Rates:** flat rate, \$7 per tap; bath-room, \$5.

**POINTE CLAIRE**, Jacques Cartier co., (2,833). In operation since 1913; owned by municipality. **Supply:** pumped from lake St. Louis, 1,900 ft. distant, to mains and stand-pipes; electric power used, 60 h.p.; steam auxiliary pumping plant. **Reservoir:** stand-pipe of 180,000 gal. capacity. **Purification:** hypochlorite of lime treatment. **Distribution:** 6½ miles of steel mains, 4 in. to 10 in.; 68 hydrants; 450 services, ½ in. lead pipe. **Pressure:** ordinary, 57 lbs.; fire, 75 lbs. **Consumption:** 300,000 gal. **Financial:** total cost of plant, \$80,000; annual maintenance, \$3,797; revenue, \$5,953. **Rates:** flat rate, \$12 and upward, based on assessment. Officer in charge: G. C. Anderson, Resident Engineer.

**PRINCEVILLE**, Arthabaska co., (400). In operation since 1911; privately owned. **Supply**: pumped from springs at centre of distribution to reservoir; wind power used. **Reservoir**: 1, of 25,000 gal. capacity. **Distribution**: 2 miles of galv. iron mains, 2 in. and 3 in.; 50 services. **Pressure**: 40 lbs. **Consumption**: 15,000 gal. **Financial**: total cost of plant, \$4,500; annual maintenance, \$56; revenue, \$552. **Rates**: flat rate, \$6 for first tap, \$2 to \$4 for additional; bath-room \$5. Owned by B. Feeney.

**QUEBEC**, Quebec co., (90,000). In operation since 1857; owned by municipality. **Supply**: by gravity from St. Charles river and lake, 9 miles distant. **Distribution**: 110 miles of C. I. mains, 4 in. to 44 in.; 928 hydrants; 9,000 services,  $\frac{1}{2}$  in. to 1 in. lead pipe. **Pressure**: ordinary, 60 to 120 lbs.; fire, up to 175 lbs. **Consumption**: 14,000,000 gal. **Financial**: total cost of plant, \$4,000,000; annual maintenance, \$30,000; interest, \$200,000; revenue, \$300,000. **Rates**: flat rate on assessment basis. Officer in charge: J. A. Jardine-Forrester, Water-works Engineer.

**LIMOILOU** (6,000), now part of Quebec, has a separate water-works system, part of which is supplied by the Quebec mains. In operation since 1895; owned by municipality. **Supply**: by gravity from springs and brook, 3 miles distant. **Distribution**: 5 miles of C. I. mains, 3 in. to 8 in.; 25 hydrants; 500 services. **Pressure**: ordinary, 40 to 80 lbs.; fire, 80 lbs. **Consumption**: 400,000 gal. **Financial**: total cost of plant, \$50,000.

**RICHELIEU**, Rouville co., (400). In operation since 1906; owned by a company. **Supply**: pumped from Richelieu river,  $\frac{1}{2}$  mile distant; electric power used, 6 h.p. **Filter**: used with good results. **Reservoir**: elevated tank of 45,000 gal. capacity. **Distribution**: C. I. mains, 4 in. and 6 in.; 21 hydrants; 90 services, lead pipe. **Pressure**: ordinary, 22 lbs.; fire, 70 lbs. **Consumption**: 40,000 gal. **Financial**: cost of supply plant, \$1,500; cost of distribution system, \$17,000; annual revenue from consumers, \$800; from public uses, \$200. **Rates**: flat rate, \$8 for first tap; bath-room, \$4. Officer in charge: Dr. A. D. Lindeau.

**RICHMOND**, Richmond co., (2,175). In operation since 1882; owned by municipality. **Supply**: by gravity from springs to reservoirs,  $1\frac{1}{2}$  miles distant. **Reservoirs**: 2, total area, 1 acre. **Distribution**: 6 miles of C. I. mains, 4 in. to 12 in.; 45 hydrants; 450 services. **Pressure**: 80 lbs. **Financial**: total cost of plant, \$60,000; annual maintenance, \$800; revenue, \$5,000; interest and sinking fund,

**\$3,124.** **Rates:** flat rate, \$14 per dwelling. Officer in charge: E. F. Cleveland, Secretary-treasurer.

**RIGAUD**, Vaudreuil co., (1,200). In operation since 1894; owned by municipality. **Supply:** by gravity from springs,  $\frac{1}{2}$  mile distant. **Reservoirs:** 2, of 90,000 gal. and 120,000 gal. respectively. **Distribution:** 4 miles of C. I. and W. I. mains, 2 in. to 9 in.; 24 hydrants; 180 services, lead pipe. **Pressure:** ordinary, 85 lbs.; fire, 135 lbs. **Financial:** total cost of plant, \$25,000; annual maintenance, \$275; interest, \$1,400; revenue; \$2,500. **Rates:** flat rate, \$10 per dwelling; bath-room, \$1.

**RIMOUSKI**, Rimouski co., (3,200). In operation since 1905, owned by municipality. **Supply:** by gravity from lake l'Anguille, 6 miles distant. **Reservoir:** 1, of 250,000 gal. capacity. **Distribution:** 14 $\frac{1}{2}$  miles of C.I. mains, 4 in. to 10 in.; 56 hydrants; 400 services,  $\frac{1}{2}$  in. and  $\frac{3}{4}$  in. lead and galv. iron pipes. **Pressure:** ordinary, 95 lbs.; fire, 110 lbs. **Consumption:** 300,000 gal. **Financial:** total cost of plant, \$135,000; annual maintenance, \$200; revenue, \$4,500. **Rates:** flat rate, \$6 per family; \$4 for bath-room. Officer in charge: M. Pineau, Superintendent.

**ROBERTSONVILLE**, Megantic co., (700). In operation since 1910; owned by municipality. **Supply:** by gravity from springs, 1 mile distant. **Reservoir:** one, 40 ft.  $\times$  7 ft. **Distribution:** 1 mile of galv. iron mains; 5 hydrants; 145 services. **Pressure:** 75 lbs. **Financial:** total cost of plant, \$13,000; annual maintenance, \$75; interest, \$1,100; revenue, \$1,300. **Rates:** flat rate, \$10 per dwelling. Officer in charge: The Mayor.

**ROBERVAL**, Chicoutimi co., (1,900). In operation since 1899; owned by municipality. **Supply:** by gravity from Latour brook, 1 $\frac{1}{2}$  miles distant. **Distribution:** 4 miles of C. I. mains, 8 in.; 24 hydrants; 350 services, galv. iron pipe. **Pressure:** 80 lbs. **Financial:** total cost of plant, \$53,500; annual maintenance, \$550; revenue from consumers, \$3,500; from public uses, \$500. **Rates:** flat rate, \$10 per dwelling.

**ROCK ISLAND**, Stanstead co., also supplies Stanstead, Que., and Derby Line, Vt. (total population, 4,200). In operation since 1892; owned by the International Water Co. **Supply:** by gravity from springs, 2 $\frac{1}{2}$  miles distant; an auxiliary gasolene pumping plant used in time of drought. **Reservoirs:** 4, of 70,000 gal., 100,000 gal., 150,000 gal. and 1,500,000 gal. capacity respectively. **Distribution:** 10 miles f

## WATER-WORKS OF QUEBEC

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C. I. mains, 4 in. to 10 in.; 66 hydrants; 500 services,  $\frac{1}{2}$  in. galv. iron pipe. **Pressure:** 80 lbs. **Consumption:** 130,000 gal. **Financial:** total cost of plant, \$75,000; annual maintenance, \$1,500 to \$2,000; revenue, \$7,300. **Rates:** flat rate, \$6 minimum, \$7.50 for bath-room. Officer in charge: W. H. McDowell, Superintendent.

**STE. AGATHE-DES-MONTS**, Terrebonne co., (2,200). In operation since 1895; owned by municipality. **Supply:** by gravity from Petit Lac des Sables and springs,  $2\frac{1}{2}$  miles, and 1 mile distant, respectively. **Distribution:**  $7\frac{1}{2}$  miles of W. I. mains, 2 in. to 12 in.; 23 hydrants; 420 services,  $\frac{1}{2}$  in. to 2 in. lead and galv. iron pipe. **Pressure:** ordinary, 70 lbs.; fire, 60 lbs. **Financial:** total cost of plant, \$107,443; annual maintenance, \$3,000; interest, 5 per cent; annual revenue, \$6,200. **Rates:** flat rate, \$6 plus  $\frac{1}{2}$ c. per \$100 assessment. Officer in charge: R. Dazé, Secretary-treasurer.

**STE. ANNE-DE-BEAUPRÉ**, Montmorency co., (1,500). In operation since 1907; owned by municipality. **Supply:** by gravity from springs,  $1\frac{1}{2}$  miles distant. **Reservoir:** 1, of 100,000 gal. capacity. **Distribution:**  $1\frac{1}{2}$  miles of C. I. mains, 3 in. to 6 in.; 14 hydrants; 100 services,  $\frac{1}{2}$  in. to  $1\frac{1}{2}$  in. **Pressure:** ordinary, 70 lbs.; fire, 80 lbs. **Consumption:** 100,000 gal. **Financial:** total cost of plant, \$20,000; annual maintenance, \$300; interest, \$560; revenue, \$2,000. **Rate:** flat rate, \$5.50 per dwelling; bath-room, \$3.50. Officer in charge: G. Morel, Secretary-treasurer.

**STE. ANNE-DE-BELLEVUE**, Jacques Cartier co., (1,772). In operation since 1914; owned by municipality. **Supply:** pumped from Ottawa river, 900 ft. distant, to stand-pipe; electric power used, 50 h. p. **Reservoir:** stand-pipe of 137,000 gal. capacity. **Distribution:** 4 miles of C. I. mains, 4. in. and 6 in.; 47 hydrants; 435 services,  $\frac{1}{2}$  in. to  $1\frac{1}{2}$  in. lead and galv. iron pipes. **Pressure:** ordinary, 47 lbs.; fire, 120 lbs. **Consumption:** 170,000 gal. **Financial:** total cost of plant, \$206,000; estimated revenue, \$14,000. **Rates:** flat rate, \$22.50 and upward per dwelling, based on rental value. Officer in charge: J. Lefebvre.

**ST. BENOIT**, Two Mountains co., (366). In operation since 1910; privately owned. **Supply:** by gravity from springs,  $2\frac{1}{2}$  miles distant. **Distribution:**  $2\frac{1}{2}$  miles of wooden mains, 3 in. and 4 in.; 51 services. **Financial:** total cost of plant, \$6,000; annual revenue, \$700. **Rates:** flat rate, \$8 per dwelling.

**STE. BRIGITTE DE LAVAL**, Montmorency co. Part of the population is supplied by individual pipes from springs.

**ST. BRUNO**, Chambly co., (300). In operation since 1880; owned by "Aqueduc St. Bruno." **Supply**: by gravity from springs, 200 ft. distant. **Reservoirs**: 2, one 20 ft.  $\times$  30 ft. and the other 10 ft.  $\times$  12 ft. **Distribution**: 1 mile of iron and wooden mains, 2 in. and 2½ in., 28 services. **Pressure**: 25 lbs. **Financial**: total cost of plant, \$4,300; annual revenue, \$370; **Rates**: flat rate, \$6 per tap; bath-room, \$4. Officer in charge: J. A. Lefrançois, Secretary-treasurer.

**ST. BRUNO**, Lake St. John co., (360). **Supply**: from Hébertville Station system. **Rates**: flat rate, \$12 and upward per dwelling.

**ST. CÉSAIRE**, Rouville co., (850). In operation since 1877; owned by municipality. Improvements made in 1898. **Supply**: by gravity from springs, 6 miles distant. **Reservoirs**: 2, of small sizes. **Distribution**: 8 miles of C. I. and W. I. mains 2 in. to 6 in.; 12 hydrants; 210 services, lead pipe. **Pressure**: ordinary, 45 lbs.; fire, 65 lbs. **Consumption**: 26,000 gal. **Financial**: total cost of plant, \$14,000; annual maintenance, \$50; revenue from consumers, \$1,800;. **Rates**: flat rate, \$4 to \$8 per dwelling. Officer in charge: J. B. Dulude.

**ST. DENIS**, St. Hyacinthe co., (900). In operation since 1887; owned by Ferdinand Fecteau. **Supply**: pumped from Richelieu river, ½ mile distant, directly into mains; steam power used, 15 to 20 h.p. **Reservoir**: 1, 18 ft.  $\times$  16 ft. **Distribution**: 1 mile of C. I. mains, 2 in. to 4 in.; 10 hydrants; 197 services. **Pressure**: ordinary, 20 lbs.; fire, 110 lbs. **Consumption**: 20,000 gal. **Rates**: flat rate, \$6 and upward per dwelling.

**ST. EPHREM**, Beauce co., (500). In operation since 1904; owned by municipality. **Supply**: pumped from springs, ½ mile distant, to reservoir; wind power and gasoline engine used, 6 h.p. **Reservoirs**: 3, 30 ft.  $\times$  30 ft. **Distribution**: ½ mile of iron mains, 2 in.; 112 services iron pipe. **Financial**: total cost of plant, \$8,000; annual maintenance, \$500; revenue, \$1,200. **Rates**: flat rate, \$9 per dwelling.

**ST. EUSTACHE**, Two Mountains co., (2,100). In operation since 1911; privately owned. **Supply**: by gravity from springs, 7 miles distant. **Reservoir**: 1, of 60,000 gal. **Distribution**: 11 miles of wooden, W. I. and C. I. mains, 1 in. to 8 in.; 30 hydrants, 260 services, ½ in. galv. iron pipe. **Pressure**: 45 lbs. **Consumption**: 48,000 gal. **Financial**: cost of supply plant, \$4,300; cost of distribution system, \$42,000; annual maintenance, \$600; interest, \$2,300; revenue from consumers,

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**\$2,600**; from public uses, **\$450**. **Rates**: flat rate, **\$6** and upward; meter rate, **50c.** per 1,000 gal. **Owned** by General Utilities Corporation, Ltd., Sorel.

**ST. FÉLICIEN**, Lake St. John co., (700). In operation since 1907; owned by O. Naud & Son. **Supply**: by gravity from stream, 7 miles distant. **Distribution**: 7 miles of C. I. mains, 4 in. to 8 in., 13 hydrants. **Pressure**: ordinary, 175 lbs.; fire, 200 lbs. **Financial**: total cost of plant, **\$60,000**. **Rates**: flat rate, **\$8** per dwelling.

**ST. FÉLIX-DE-KINGSEY**, Arthabaska co., (225). In operation since 1908; owned by "Compagnie d'Aqueduc de Kingsey." **Supply**: pumped from springs, 1 mile distant, to a reservoir; wind power and gasoline engine used. **Filter**: charcoal and gravel filter used. **Reservoir**: 1, of 8,000 gal. capacity. **Distribution**: 1 mile of galv. iron mains, **1½** in. and 2 in.; 1 hydrant; 33 services, **½** in. galv. iron pipe. **Pressure**: 20 lbs. **Financial**: total cost of plant, **\$3,500**; annual maintenance, **\$100**; annual revenue, **\$250**. **Rates**: flat rate, **\$6** per dwelling; **\$3** for bath-room.

Another system resembling the above supplies 10 other consumers in the same village.

**ST. FÉLIX-DE-VALOIS**, Joliette co., (500). In operation since 1876; privately owned. **Supply**: by gravity from spring, 1 mile distant. **Reservoirs**: small collecting reservoirs and 2 main reservoirs of 6,000 and 19,000 gal. capacity, respectively. **Distribution**: 2½ miles W. I. mains, **2½** in. to 4 in.; 1 hydrant; 130 services, **½** in. galv. iron pipe. **Pressure**: 5 to 45 lbs. **Consumption**: 15,000 gal. **Financial**: total cost of plant, **\$8,000**; annual maintenance, **\$100**; interest, **\$80**; revenue, **\$850**. **Rates**: flat rate, **\$5** per dwelling; bath-room, **\$2**. **Owner**: G. Asselin.

**STE. FLAVIE STATION, (MONTJOLY)** Matane co., (1,800). In operation since 1905; privately owned. **Supply**: by gravity from Noir and Aubin lakes, **3½** miles distant. **Distribution**: 8 miles of C. I. mains, 4 in. to 8 in.; 30 hydrants; 160 services, **½** in. galv. iron pipe. **Pressure**: 70 lbs. **Consumption**: 250,000 gal. **Financial**: cost of supply plant, **\$50,000**; cost of distribution system, **\$15,000**; annual maintenance, **\$700**; revenue from consumers, **\$3,600**; from public uses, **\$200**.

**ST. FRANÇOIS-DE-SALES**, L'Assomption co., (see under *Charlemagne*).

**ST. GAËTEL-DE-BRANDON**, Berthier co., (1,700). In operation since 1891, owned by municipality. **Supply**: pumped from Payette lake and

brook, 2 miles distant, to reservoir and mains; steam power used, 10 h.p. to 12 h.p. **Reservoir:** 1, of 18,000 gal. capacity. **Distribution:** 8 miles of C. I. and W. I. mains, 1 in. to 4 in.; 15 hydrants; 400 services. **Financial:** total cost of plant, \$23,000; annual maintenance, \$900; interest, \$700; revenue, \$3,500. **Rates:** flat rate, \$6 and upward per dwelling on assessment basis.

**STE. GENEVIÈVE-DE-BATISCAN**, Champlain co., (525). In operation since 1901; owned by "Société de l'Aqueduc des Laurentides." **Supply:** by gravity from Frigon brook, 3 miles distant. **Reservoir:** 1, of 6,000 gal. capacity. **Distribution:** 5 miles of C. I. and W. I. mains, 2 in. to 4 in.; 93 services. **Pressure:** 50 lbs. **Financial:** total cost of plant, \$5,000; annual maintenance, \$50; revenue, \$485. **Rates:** flat rate, \$7 per dwelling.

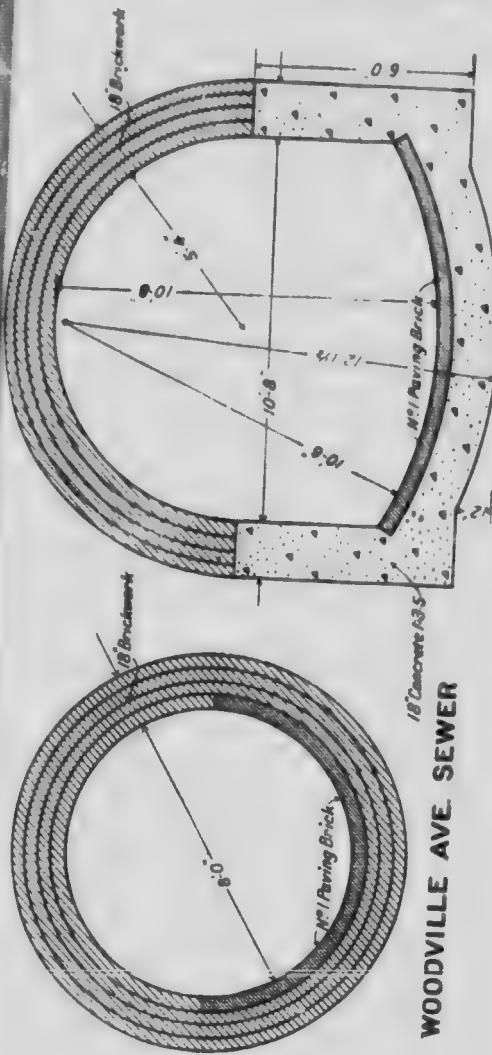
**ST. GEORGE**, Beauce co. In operation since 1889; a portion of the population is supplied by a privately owned system. **Supply:** by gravity from springs, 1 mile distant. **Reservoir:** 1, of 6,000 gal. capacity. **Distribution:** 1½ miles of W. I. mains, 1½ in. and 2 in.; 33 services, W. I. pipe. **Financial:** total cost of plant, \$2,750; annual maintenance, \$37; revenue, \$400. **Rates:** flat rate, \$7 per dwelling; bath-room, \$3. Owned by G. Langlois.

Another portion is supplied by a system owned by G. Gagné. In operation since 1887. **Supply:** by gravity from a spring. **Reservoirs:** 6 small reservoirs distributed at different points on the system. **Distribution:** 2½ miles of W. I. mains, 1 in. to 3 in. **Financial:** total cost of plant, \$6,600; annual maintenance, \$75; revenue, \$800. **Rates:** flat rate.

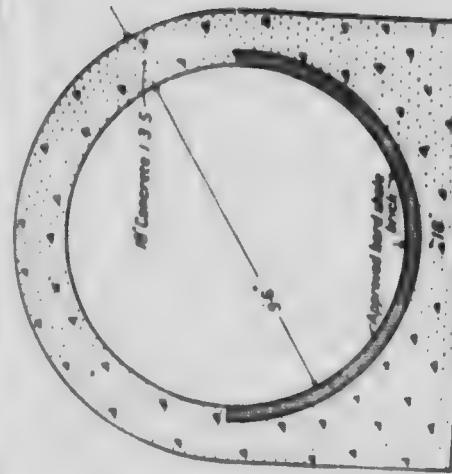
**ST. HILAIRE STATION**, Rouville co., (75). Privately owned. **Supply:** by gravity from lake Hertel, 4 miles distant. **Reservoirs:** 3, of 19,000 gal.; 24,000 gal. capacity; the other one is small. **Distribution:** 4 miles of C. I. mains; 30 services. **Pressure:** 32 lbs. **Financial:** total cost of plant, \$10,000; annual maintenance, \$100. **Rates:** flat rate, \$8 to \$20 per dwelling. Owner: B. F. Campbell.

**ST. HUGUES**, Bagot co., (49). In operation since 1912; owned by Tétreault & Grandpré. **Supply:** pumped from artesian well, ½ mile distant, to reservoir; 4½ h.p. gasolene engine used. **Distribution:** 1 mile of iron mains, 1½ in. and 2 in. **Consumption:** 1,500 gal. **Financial:** total cost of plant, \$3,250; annual revenue, \$250. **Rates:** flat rate, \$6 per tap.

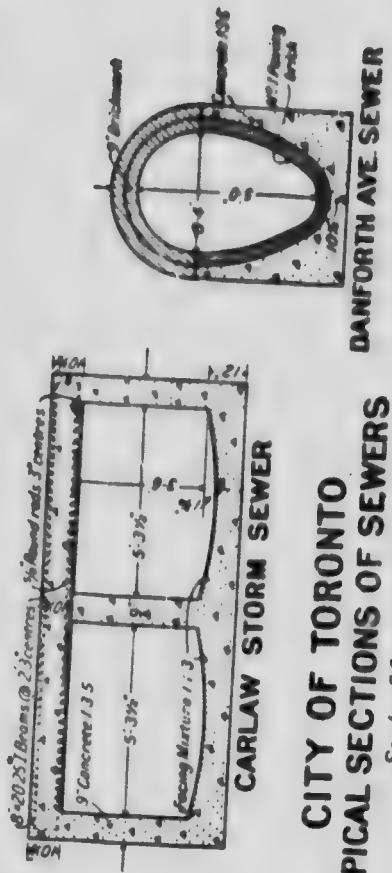
**ST. HYACINTHE**, St. Hyacinthe co., (11,640). In operation since 1894; owned by municipality. **Supply:** pumped from Yamaska river,



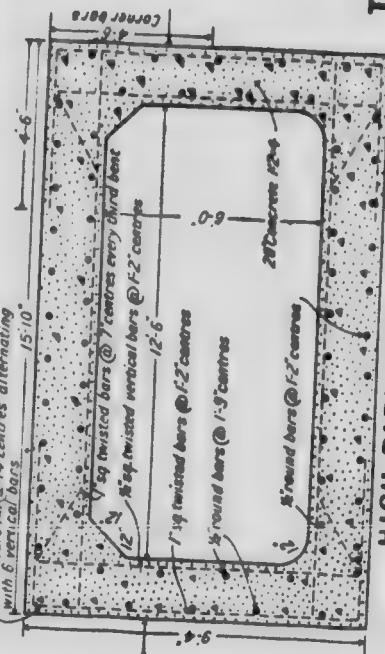
18 E. WOODVILLE AVE. SEWER



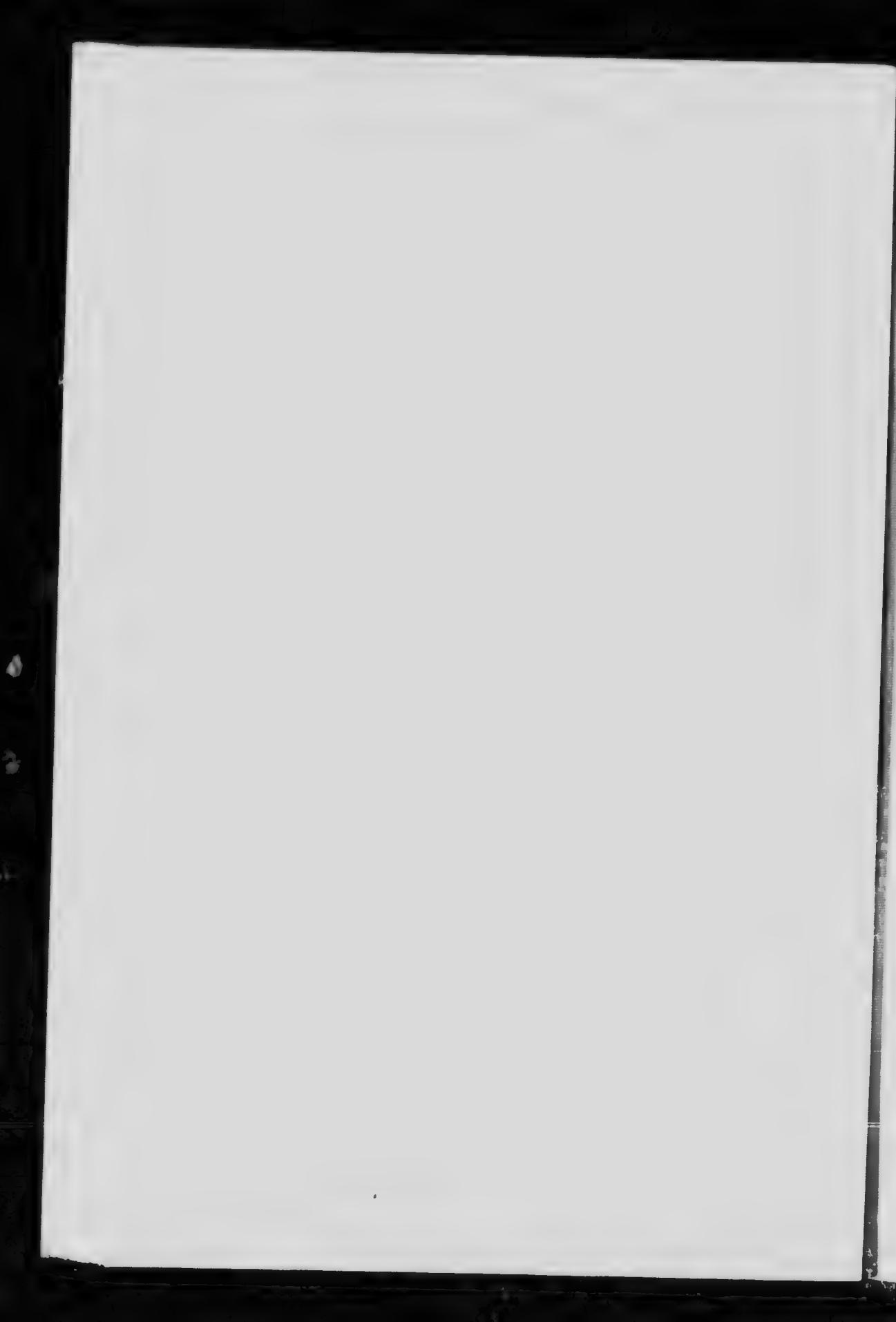
GARRISON CREEK STREAM STUDY



**CITY OF TORONTO**  
**TYPICAL SECTIONS OF SEWERS**



## HIGH PARK STORM SEWER



WATER-WORKS OF QUEBEC

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1/2 mile distant, directly into mains; steam and electric power used, maximum, 125 h.p., average, 75 h.p. Boilers and pumps are in duplicate and there are 2 separate pumping stations. **Filter:** Jenckes (Sherbrooke) filters used. **Distribution:** 17 miles of C. I. and W. I. mains, 2 in. to 24 in.; 107 hydrants; 2,090 services, lead and galv. iron pipe. **Pressure:** ordinary, 70 lbs.; fire, 125 lbs. **Consumption:** 1,700,000 gal. **Financial:** total cost of plant, \$275,000; annual maintenance, \$10,000; revenue, \$30,000. **Rates:** flat rate on assessment basis, \$6 and upward per dwelling. Officer in charge: A. Messier, Superintendent.

**ST. JÉRÔME**, Terrebonne co., (4,500). In operation since 1890; owned by municipality. **Supply:** by gravity from North river, 3 miles distant, for fire purposes, and from a spring, 2 miles distant, for domestic purposes. **Reservoirs:** 2, of 25,000 gal. and 40,000 gal. capacity respectively. **Distribution:** 12 miles of C. I. mains, 6 in. to 16 in.; 72 hydrants; 1,200 services. **Pressure:** ordinary, 65 lbs.; fire, 120 lbs. **Financial:** total cost of plant, \$96,000; annual maintenance, \$785; interest and sinking fund, \$4,245; revenue, \$9,961. **Rates:** flat rate, \$8 per dwelling, plus 24c. on \$100 assessment. Officer in charge: E. Marchand, Secretary-treasurer.

**ST. JÉRÔME-DU-LAC-ST. JEAN**, Chicoutimi co., (700). In operation since 1907; owned by municipality. **Supply:** by gravity from a branch of Kouche paganish river, 4 miles distant. **Reservoir:** 1, of 80,000 gal. capacity. **Distribution:** 5 miles of 4 in. C. I. mains; 16 hydrants; 125 services, lead and galv. iron pipe. **Pressure:** 62 lbs. **Consumption:** 10,000 gal. **Financial:** total cost of plant, \$20,000; annual maintenance, \$100; interest and sinking fund, \$1,200; revenue, \$1,200. **Rates:** flat rate, \$7 for first tap. Officer in charge: Thomas Noël, Secretary-treasurer.

**ST. JOHNS**, St. Johns co., (6,400). In operation since 1872; owned by "L'Aqueduc de St. Jean." **Supply:** pumped from Richelieu river, 2,000 ft. distant, directly into mains; steam power used; average, 60 h.p.; maximum, 200 h.p.; pumping apparatus in duplicate. **Purification:** water treated with hypochlorite of lime. **Reservoir:** 1, of 20,000 gal. capacity. **Distribution:** 11 miles of C. I. mains, 4 in. to 10 in.; 76 hydrants; 1,400 services, lead pipe. **Pressure:** ordinary, 50 lbs.; fire, 125 lbs. **Consumption:** 650,000 gal. **Rates:** flat rate, \$8 per dwelling; meter rate, 20c. to 30c. per 1,000 gal.

**ST. JOSEPH-DE-BEAUCE**, Beauce co., (1,600). In operation since 1908; owned by municipality. **Supply:** by gravity from springs, 3 miles

## COMMISSION OF CONSERVATION

distant. **Reservoir:** 1, of 67,000 gal. capacity. **Distribution:** 4½ miles of C. I. and W. I. mains, 3 in. and 6 in.; 12 hydrants, 310 services, 1 in. galv. iron pipe. **Pressure:** 65 lbs. **Consumption:** 50,000 gal. **Financial:** total cost of plant, \$35,000; annual maintenance, \$300; revenue, \$2,600. **Rates:** flat rate, \$6 per dwelling, \$4 for bath-room. Officer in charge, N. Dular.

**ST. JOSEPH-DE-SOREL**, Richelieu co., (2,200). In operation since 1908; privately owned. **Supply:** pumped from St. Lawrence river, 1 mile distant, to reservoir or mains; electric power and gasoline engine used, maximum, 25 h.p., average 15 h.p.; pumps in duplicate. **Reservoir:** 1, of 35,000 gal. capacity. **Distribution:** 6 miles of C. I. and W. I. mains, 3 in. to 6 in.; 13 hydrants; 252 services, 1 in. galv. iron pipe. **Pressure:** ordinary, 40 lbs.; fire, 120 lbs. **Consumption:** 30,000 gal. **Financial:** cost of supply plant, \$16,000; cost of distribution system, \$26,000; annual maintenance, \$600; interest, \$2,100; revenue, \$2,200. **Rates:** flat rate, \$6 per tap; bath-room, \$4. Owned by General Utilities Corporation, Ltd., Sorel.

**ST. JOSEPH**, St. Hyacinthe co., Water supplied from St. Hyacinthe system.

**ST. LAMBERT**, Chambly co., (5,000). In operation since 1887; owned by municipality. **Supply:** pumped from St. Lawrence river, 1,450 ft. distant, to elevated tank or to mains; electric power used with steam auxiliary, average 40 h.p., maximum 75 h.p. **Reservoir:** elevated tank of 100,000 gal. capacity. **Distribution:** 11½ miles of C. I. mains, 4 in. to 14 in.; 128 hydrants; 720 services, 1 in. to 1 in. lead pipe. **Pressure:** ordinary, 52 lbs.; fire, 125 to 150 lbs. **Consumption:** 306,000 gal. **Financial:** cost of supply plant, \$17,500; cost of distribution system, \$86,500; annual maintenance, \$5,562; interest, \$4,077; annual revenue, \$9,051. **Rates:** flat rate, \$6.50 and upward per dwelling; meter rate, 15c. to 27c. per 1,000 gal. Officer in charge: E. Drinkwater, Town Engineer.

**ST. LAURENT**, Jacques Cartier co., (1,800). In operation since 1904; owned by municipality. **Supply:** pumped to reservoir from riv. des Prairies, 3 miles distant; steam and electric power used. **Reservoir:** stand-pipe of 150,000 gal. capacity. **Purification:** hypochlorite of lime treatment. **Distribution:** 7 miles of C. I. mains, 4 in. to 8 in.; 60 hydrants; 1,000 services, 1 in. to 1 in. lead pipe. **Pressure:** ordinary, 30 lbs.; fire, 100 lbs. **Consumption:** 230,000 gal. **Financial:** total cost of plant, \$68,663; annual maintenance, \$6,000; revenue, \$5,600.

## WATER-WORKS OF QUEBEC

**Rates:** flat rate, 10 per cent on rental value. Officer in charge: R. Lecavalier, Superintendent.

**STE. MARTINE,** Châteauguay co., (666). In operation since 1900; owned by E. McGowan. **Supply:** pumped to tank from Châteauguay river,  $\frac{1}{2}$  mile distant; wind power and gasoline engine used; average, 8 h.p. **Reservoir:** 1, of 25,000 gal. capacity. **Distribution:** 7 miles of C. I. mains, 2 in. to 6 in., 4 hydrants, 110 services, 3 in. and  $\frac{1}{2}$  in. lead and galv. iron pipes. **Consumption:** 4,000 gal. **Financial:** total cost of plant, \$10,000; annual maintenance, \$167; revenue, \$1,050. **Rates:** flat rate, \$8 and upward per dwelling, bath-room, \$3.

**ST. MATHIAS,** Rouville co., (200). In operation since 1914; privately owned. **Supply:** from Richelieu system, q.v. **Distribution:** 3 miles of 3 in. galv. iron mains; 40 services. **Pressure:** 30 lbs. **Consumption:** 7,500 gal. **Financial:** cost of distribution system, \$6,000; annual maintenance, \$150; revenue, \$300. **Rates:** flat rate, \$8 for first tap; bath-room, \$4.

**ST. OURS,** Richelieu co., (800). In operation since 1890; owned by P. Gaudet & Son. **Supply:** pumped from springs,  $\frac{1}{2}$  mile distant, to reservoir; electric power used, 2 to 3 h.p. **Reservoir:** 1, of 24,000 gal. capacity. **Distribution:** 2 miles of galv. iron mains, 1 $\frac{1}{2}$  in. and 2 in.; 160 services. **Pressure:** 25 lbs. **Financial:** total cost of plant, \$12,000; annual maintenance, \$90; revenue, \$1,300. **Rates:** flat rate, \$5 and upward per dwelling.

**ST. PATRICE-DE-BEAURIVAGE,** Lotbinière co., (900). In operation since 1908; owned by J. B. Gagné. **Supply:** by gravity from a spring,  $\frac{1}{2}$  mile distant. **Distribution:**  $\frac{1}{2}$  mile of W. I. mains,  $\frac{1}{2}$  in. to 2 $\frac{1}{2}$  in.; 16 services,  $\frac{1}{2}$  in. pipe. **Financial:** cost of supply plant, \$100; cost of distribution system, \$1,400; annual maintenance, \$110; revenue, \$155. **Rates:** flat rate, \$7 for first tap; bath-room, \$3.

**ST. PAUL L'ERMITE,** L'Assomption co. (see under *Charlemagne*.)

**ST. PIE,** Bagot co., (1,200). In operation since 1882; owned by municipality. **Supply:** by gravity from springs on Yamaska mountain, 3 miles distant; auxiliary station to pump water from Yamaska river. **Reservoir:** 1, 30 ft.  $\times$  10 ft. **Distribution:** 3 $\frac{1}{2}$  miles of C. I. and W. I. mains, 1 in. to 3 in.; 400 services. **Financial:** total cost of plant, \$14,000; annual maintenance, \$1,000; interest, \$780; revenue, \$2,000. **Rates:** flat rate, \$7 per dwelling. Officer in charge: E. St. Pierre, Secretary-treasurer.

**ST. PIERRE**, Jacques Cartier co., (3,600). In operation since 1908. Town is supplied with water from the Notre-Dame-de-Grace system, q.v. under *Montréal*. Officer in charge: L. H. Mauviel, Secretary-treasurer.

**ST. RAYMOND**, Portneuf co., (1,600). In operation since 1889, owned by Dr. H. Trudel. **Supply**: by gravity from springs, 3 miles distant. **Reservoir**: 1, 12 ft.  $\times$  14 ft. **Distribution**: 4 miles of wooden and C. I. mains, 1 in. to 5 in.; 250 services. **Pressure**: 40 lbs. **Financial**: cost of plant, \$10,000; annual maintenance, \$200; interest, \$600; revenue, \$1,500. **Rates**: flat rate, \$3 per dwelling; bath-room, \$1.

**STE. ROSE**, Laval co., (2,200). In operation since 1913; owned by municipality. **Supply**: pumped from Mille Iles river, 1,400 ft. distant, to mains and reservoir; electric power and gasoline engine used. **Reservoir**: 1, of 80,000 gal. **Purification**: mechanical filtration used. **Distribution**: 6 miles of steel mains, 4 in. to 12 in.; 55 hydrants; 425 services,  $\frac{1}{2}$  in. and 1 in. pipe. **Pressure**: ordinary, 68 lbs.; fire, 125 lbs. **Financial**: total cost of plant, \$82,000; revenue, \$6,000. **Rates**: flat rate, \$6 for first tap.

**STE. SCHOLASTIQUE**, Two Mountains co., (1,000). In operation since 1904; owned by J. U. Foucher & Co. **Supply**: pumped from springs to reservoir. **Rates**: flat rate.

**ST. SIMEON**, Charlevoix co., (500). In operation since 1908; owned by Dégagné and Tremblay. **Supply**: by gravity from springs,  $\frac{1}{2}$  mile distant. **Reservoirs**: 2, 12 ft.  $\times$  12 ft. each. **Distribution**: 1 mile of C. I. mains, 2 in. and 4 in.; 60 services. **Financial**: total cost of plant, \$3,500; annual maintenance, \$50; revenue, \$180. **Rates**: flat rate, \$6 per dwelling.

**STE. THÉRÈSE**, Terrebonne co., (2,000). In operation since 1913; owned by "Cie. d'Aqueduc de Blainville." **Supply**: by gravity from springs, 1 mile distant and pumped directly into mains; electric power used, average 30 h.p. **Distribution**: 6 $\frac{1}{2}$  miles of mains, 2 in. to 8 in.; 470 services. **Pressure**: 30 lbs. **Financial**: total cost of plant, \$25,000. **Rates**: flat rate, \$6 and upward, based on assessment.

**ST. TITE**, Champlain co., (2,200). In operation since 1906; owned by "La Cie. d'Aqueduc de fer de St. Tite." **Supply**: by gravity from Eric lake, 3 miles distant. **Distribution**: 6 miles of steel mains, 4 in. and 8 in.; 30 hydrants; 225 services, steel pipe. **Pressure**: 167 lbs. Con-

## WATER WORKS OF QUEBEC

sumption: 150,000 gal. Financial: cost of supply plant, \$20,000; cost of distribution system, \$10,000; annual maintenance, \$1,200; revenue from consumers, \$3,000; from public uses, \$350. Rates: flat and meter rates, flat rate, \$9 per dwelling; meter rate, 25c per 1,000 gal. Officer in charge: J. J. Cloutier, Secretary-treasurer.

**SAULT-AU-RÉCOLLET**, Laval co., (1,800). In operation since 1912; owned by municipality. Supply: pumped from des Prairies river, 3 miles distant, to reservoir, electric power used, 25 h. p. Purification: sand and alum filtration. Reservoir: 1 of 90,000 gal. capacity. Distribution: 5 miles of C. I. mains, 4 in. to 8 in.; 51 hydrants; 350 services, lead pipe. Pressure: ordinary, 70 lbs; fire, 60 lbs. Financial: total cost of plant, \$150,000; annual maintenance, \$4,000; interest, \$7,000; revenue from consumers, \$1,800; from public uses, \$1,300. Rates: flat rate, \$8 per dwelling; meter rate, 25c per 1,000 gal.

**SAWYERVILLE**, Compton co., (150). In operation since 1908, owned by municipality. Supply: by gravity from spring, 1 mile distant. Reservoir: 1, of 120,000 gal. capacity. Distribution: 1½ miles of C. I. mains, 4 in. to 8 in.; 15 hydrants; 80 services. Pressure: 80 lbs. Financial: total cost of plant, \$18,000; annual maintenance, \$100; revenue from consumers, \$650; from public uses, \$350. Rates: flat rate, \$8 for first tap; \$3 for bath-room. Officer in charge: C. W. Waldron, Superintendent.

**SCOTSTOWN**, Compton co., (1,000). In operation since 1912; owned by municipality. Supply: by gravity from mountain brook, 5 miles distant; auxiliary pumping plant for emergency. Reservoirs: 2, of 30,000 gal. and 170,000 gal. capacity respectively. Distribution: 6 miles of mains, 4 in. to 6 in.; 14 hydrants. Pressure: 150 lbs. Financial: total cost of plant, \$35,000; annual maintenance, \$300. Rates: flat rate, \$8 per tap. Officer in charge: S. Boy, Secretary-treasurer.

**SHAWBRIDGE**, Terrebonne co., (225). In operation since 1889; owned by P. M. Jordan. Supply: by gravity from springs, ½ mile distant. Distribution: ½ mile of galv. iron mains, 1½ in. and 1 in. Rates: flat rate, \$8 and upward per dwelling.

**SHAWINIGAN FALLS**, St. Maurice co., (5,500). In operation since 1903; owned by municipality. Supply: pumped from St. Maurice river, ½ mile distant, to reservoir, or directly into mains; electric power used; maximum, 250 h.p., average, 30 h.p. Purification: mechanical filtration used. Reservoir: one of 30,000 gal. capacity.

## COMMISSION OF CONSERVATION

**Distribution:** 5 miles of C. I. mains, 4 in. to 12 in.; 54 hydrants; 1,275 services,  $\frac{1}{2}$  in. to 1 in. lead pipe. **Pressure:** ordinary, 90 lbs.; fire, 150 lbs. **Consumption:** 700,000 gal. **Financial:** total cost of plant, \$109,423; annual maintenance, \$8,000; interest, \$3,478; revenue, \$12,000. **Rates:** flat rate, \$6 for first tap; \$1.50 for additional; bath-room, \$4; meter rate, 3c. to 75c. per 1,000 gal. Officer in charge: A. J. Meunier, Secretary-treasurer.

**SHERBROOKE**, Sherbrooke co. (19,300). In operation since 1880; owned by municipality. **Supply:** pumped from Magog river,  $2\frac{1}{2}$  miles distant, to reservoir and directly into mains; water-power used; average, 120 h.p. **Reservoir:** 1, of 10,500,000 gal. capacity; stand-pipe, 25,000 gal. **Distribution:** 31 miles of C. I. mains, 2 in. to 24 in.; 174 hydrants; 2,270 services, galv. iron and lead pipes. **Pressure:** 15 lbs. to 125 lbs. **Consumption:** 2,600,000 gal. **Financial:** cost of supply plant, \$135,000; cost of distribution system, \$324,000; annual maintenance, \$15,000; revenue, \$62,200. **Rates:** flat rate, \$5 to \$9 per dwelling; bath-room, \$5. Officer in charge: Thos. Tremblay, City Engineer.

**SOREL**, Richelieu co., (10,000). In operation since 1872; owned by municipality. **Supply:** pumped from Richelieu river to reservoir, or directly into mains; steam and electric power used; maximum, 120 h.p., average, 55 h.p. **Reservoir:** 1, of 100,000 gal. capacity. **Distribution:** 13 miles of C. I. mains, 2 in. to 8 in.; 59 hydrants; 2,300 services, lead pipe. **Pressure:** ordinary, 50 lbs.; fire, 90 to 120 lbs. **Financial:** total cost of plant, \$145,000; annual maintenance, \$7,000; revenue, \$21,000. **Rates:** flat rate, based upon rental value, \$6 and upward per dwelling; meter rate, 19c. per 1,000 gal.

**STANSTEAD**, (See *Rock Island*).

**SUTTON**, Brome co., (1,000). In operation since 1898, owned by municipality. **Supply:** by gravity from a small lake and brook, 4 miles distant. **Filter:** gravel filter used. **Reservoir:** 1, of 340,000 gal. capacity. **Distribution:** 5 miles of C. I. mains, 4 in. to 10 in.; 40 hydrants; 160 services,  $\frac{1}{2}$  in. and 1 in. galv. iron pipe. **Pressure:** 75 lbs. **Financial:** total cost of plant, \$20,000; annual maintenance, \$200; interest, \$350; revenue, \$2,600. **Rates:** flat rate, \$6 per dwelling, \$4 for bath-room. Officer in charge: J. W. Kemp, Superintendent.

**SWEETSBURG**, Mississquoi co., (200). In operation since 1910; owned by municipality. **Supply:** by gravity from Crystal lake,  $2\frac{1}{2}$  miles distant.

**Reservoir:** 1, of 148,000 gal. capacity. **Distribution:** 3½ miles of C. I. and W. I. mains, 4 in. and 6 in.; 12 hydrants; 30 services, ½ in. iron pipe. **Pressure:** ordinary, 50 lbs; fire, 70 lbs. **Consumption:** 20,000 gal. **Financial:** total cost of plant, \$13,000; annual maintenance, \$150; interest, \$555; revenue from consumers, \$425; from public uses, \$100. **Rates:** flat rate, \$6 per dwelling; bath-room \$6. Officer in charge: Dr. F. H. Pickel, Chairman.

**TADOUSSAC**, Saguenay co., (600). In operation since 1901; owned by municipality. **Supply:** by gravity from Tadoussac lake, 1 mile distant. **Reservoir:** 1, of 28,000 gal. capacity. **Distribution:** 1 mile of C. I. and W. I. mains, 1 in. to 5 in.; 6 hydrants; 112 services, ½ in. galv. iron pipe. **Pressure:** ordinary, 200 lbs.; fire, 250 lbs. **Consumption:** 17,500 gal. **Financial:** total cost of plant, including sewerage, \$13,000; annual maintenance, \$500; revenue from consumers, \$1,150; from public uses, \$150. **Rates:** flat rate on assessment, \$6 to \$15 per dwelling.

**TERREBONNE**, Terrebonne co., (2,000). In operation since 1898; owned by municipality. **Supply:** by gravity from springs, 2 miles distant. **Reservoirs:** 4 small reservoirs. **Distribution:** 3 miles of C. I. and W. I. mains, 2 in. to 8 in.; 20 hydrants; 350 services, iron pipe. **Pressure:** ordinary, 40 lbs.; fire, 100 lbs. **Financial:** cost of supply plant, \$4,500; cost of distribution system, \$50,000; annual maintenance, \$300; revenue \$4,000. **Rates:** flat rate, \$8 and \$10 per dwelling.

**THETFORD MINES**, Megantic co., (8,000). In operation since 1890; owned by municipality. **Supply:** by gravity from springs, 2 m. distant. **Reservoirs:** three, of 170,000 gal., 840,000 gal., and 20,000,000 gal. capacity respectively. **Distribution:** 18 miles of C. I. and W. I. mains, 2 in. to 12 in.; 98 hydrants; 1,400 services. **Pressure:** ordinary, 105 lbs; fire, 50 lbs. **Consumption:** 800,000 gal. **Financial:** total cost of plant, \$220,000; annual maintenance, \$1,800, interest, \$10,000; revenue from consumers, \$18,000; from public uses, \$2,000. **Rates:** flat rate, \$8 for first tap; bath-room \$4, meter rate, 15c. per 1,000 gal. Officer in charge: E. Lamonde, Superintendent.

**THREE RIVERS**, St. Maurice co., (19,000). In operation since 1876; owned by municipality. **Supply:** pumped from wells fed from St. Maurice river, 1 mile distant, directly into mains; electric power used; maximum 500 h.p., average 200 h.p.; steam auxiliary pumping plant. **Distribution:** 18½ miles of C. I. mains, 4 in. to 12 in.; 192 hydrants; 3,850 services, ½ in. to 1 in. lead and galv. iron pipes. **Pres-**

## COMMISSION OF CONSERVATION

**sure:** ordinary, 90 lbs.; fire, 150 lbs. **Consumption:** 2,400,000 gal. **Financial:** total cost of plant, \$347,090; annual maintenance, \$22,000; annual revenue, \$40,300. **Rates:** flat rate, which averages \$15 per dwelling, based on rental value; large consumers on meter, 7c. per 1,000 gal. Officer in charge: Z. Lambert, City Engineer.

**THURSO**, Labelle co., (600). In operation since 1899; owned by municipality. **Supply:** pumped from Blanche river, 1 mile distant, to reservoir; water-power used. **Reservoir:** 1, 25 ft.  $\times$  25 ft. **Distribution:** 2½ miles of C. I. mains, 4 in. and 6 in.; 8 hydrants; 102 services, ½ in. galv. iron pipe. **Financial:** total cost of plant, \$18,000; annual maintenance, \$500; revenue from consumers, \$900; from public uses, \$90; **Rates:** flat rate, \$6 and upward on assessment basis. Officer in charge: H. Torney.

**UPTON**, Bagot co., (700). In operation since 1894; owned by Pinsonneault Bros. **Supply:** pumped from Black river, 1,500 ft. distant, to reservoir; gasolene engine used, 4 h.p. to 8 h.p. **Reservoir:** 1, of 40,000 gal. **Distribution:** 3½ miles of iron mains, 2 in. and 2½ in.; 132 services. **Pressure:** 12 lbs. **Consumption:** 25,000 gal. **Financial:** total cost of plant, \$10,000; annual maintenance, \$350; interest, \$600; revenue from consumers, \$1,500; from public uses, \$100. **Rates:** flat rate, \$7 and upward per dwelling.

**VALLEYFIELD**, Beauharnois co., (9,487). In operation since 1885, extended in 1896; owned by municipality. **Supply:** pumped from St. Lawrence river directly into mains; water-power used. **Distribution:** 11 miles of C. I. mains, 4 in. to 12 in.; 135 hydrants; 2,103 services, ½ in. and ¾ in. lead pipe. **Pressure:** ordinary, 70 lbs.; fire, 120 lbs. **Consumption:** 1,200,000 gal. **Financial:** total cost of plant, \$184,000; annual maintenance, 3,500; interest, \$920; revenue, \$18,650. **Rates:** flat rate, on assessment basis; \$5 and upward per dwelling. Officer in charge: L. J. Boyer, City Clerk.

**VARENNES**, Verchères co., (1,500). In operation since 1892; privately owned. **Supply:** pumped from St. Lawrence river, 1,500 ft. distant, to reservoir; electric power used; maximum, 25 h.p., average, 12 h.p.; pumps in duplicate. **Reservoir:** 1 of 60,000 gal. **Distribution:** 3½ miles of C. I. mains, 2 in. to 8 in.; 12 hydrants; 225 services, ½ in. galv. iron pipe. **Pressure:** ordinary, 45 lbs.; fire, 125 lbs. **Consumption:** 40,000 gal. **Financial:** cost of supply plant, \$14,000; cost of distribution system, \$11,000; annual maintenance, \$900; revenue from consumers, \$1,800; from public uses, \$400. **Rates:** flat rate, \$6 and upward per dwelling. Officer in charge: V. E. Martel, Superintendent.

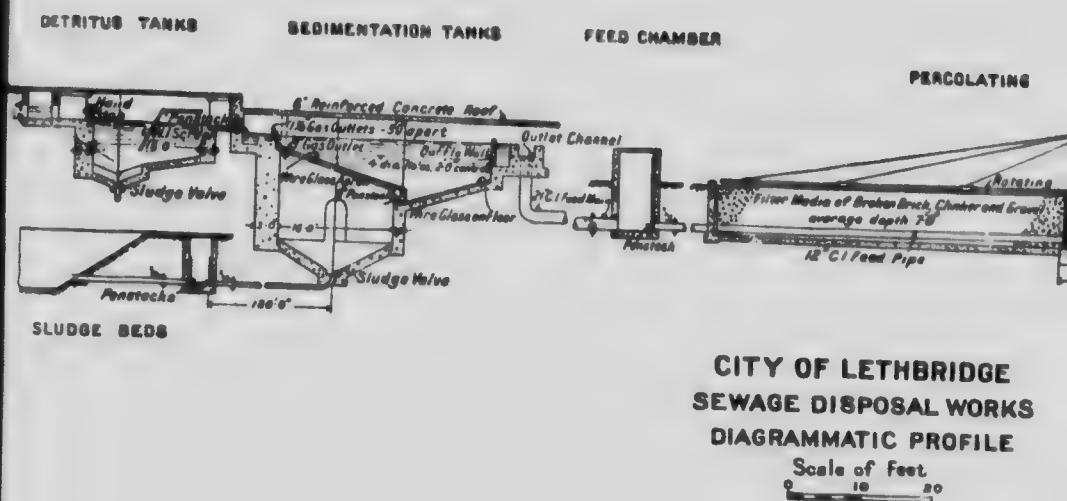
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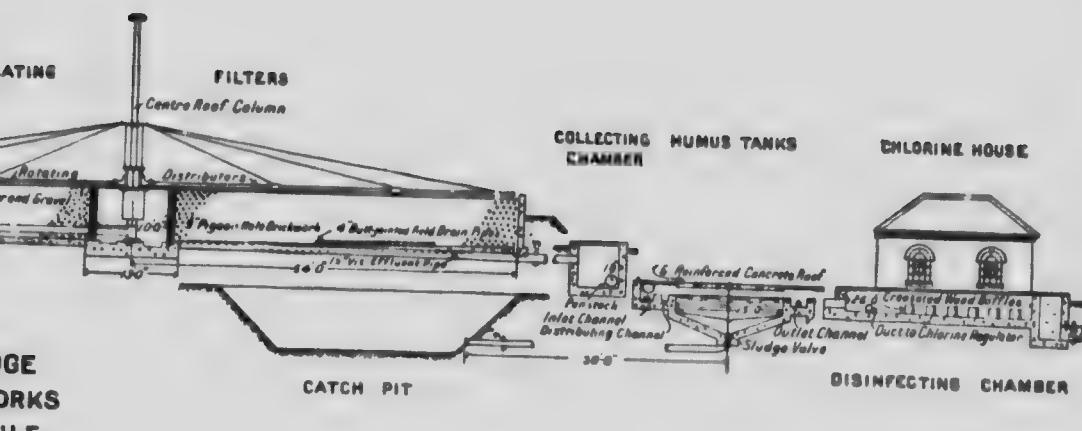
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**COMMISSION OF CONSERVATION**





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**VAUDREUIL**, Vaudreuil co. System is owned jointly with *Dorion*, q.v. for details which are common to both. **Distribution**: mains included under *Dorion*; 9 hydrants; 100 services,  $\frac{1}{2}$  in. lead pipe. **Pressure**: 25 to 40 lbs.; **Financial**: cost of plant included under *Dorion*, annual maintenance, \$100; interest, \$1,275; revenue from consumers, \$1,300; from public uses, \$75. **Rates**: flat rate, \$8, plus 25c. per \$100 on assessment.

**VERDUN**, Jacques Cartier co., (30,000). In operation since 1908; owned by municipality. **Supply**: pumped from St. Lawrence river, 1,000 ft. distant, directly into mains; steam power used; maximum, 150 h. p., average, 60 h.p.; pumping apparatus is in duplicate. **Purification**: mechanical filtration. **Distribution**: 20 miles of C. I. mains, 4 in. to 12 in.; 180 hydrants; 6,000 services,  $\frac{1}{2}$  in. and  $\frac{1}{4}$  in. pipe. **Pressure**: ordinary, 60 lbs.; fire, 100 lbs. **Consumption**: 1,200,000 gal. **Financial**: cost of supply plant, \$85,000; cost of distribution system, \$130,000; annual maintenance, \$13,000; revenue, \$32,000. **Rates**: flat rate, 4 per cent of rental. Officer in charge: H. Hadley, City Engineer.

**VICTORIAVILLE**, Arthabaska co., (4,800). In operation since 1907; owned by municipality. **Supply**: pumped from Nicolet river,  $1\frac{1}{2}$  miles distant, directly into mains; steam and electric power used. **Reservoirs**: 3, of 100,000 gal., 50,000 gal. and 50,000 gal. respectively. **Distribution**: 9 miles of C. I. mains, 4 in. to 14 in.; 70 hydrants; 772 services,  $\frac{1}{2}$  in. pipe. **Pressure**: ordinary, 100 lbs.; fire, 135 lbs. **Financial**: cost of plant, \$125,000; annual maintenance and interest, \$10,000; revenue, \$12,000. **Rates**: flat rate, \$6 per tap.

**VILLE MARIE**, Timiskaming co., (800). In operation since 1909; owned by municipality. **Supply**: by gravity from springs,  $1\frac{1}{2}$  miles distant. **Distribution**:  $1\frac{1}{2}$  miles of mains,  $1\frac{1}{2}$  in. to 8 in.; 15 hydrants; 140 services. **Pressure**: 60 lbs. **Financial**: total cost of plant, \$31,000; annual maintenance, \$100; interest, \$1,250; revenue, \$2,000. **Rates**: flat rate, \$12 per dwelling. Officer in charge: J. Maillard, Secretary-treasurer.

**WARDEN**, Shefford co., (150). In operation since 1894; privately owned. **Supply**: by gravity from springs,  $\frac{1}{4}$  mile distant. **Reservoir**: 1, 20 ft.  $\times$  30 ft. **Distribution**:  $\frac{1}{2}$  mile C. I. and W. I. mains,  $2\frac{1}{2}$  in. to 4 in.; 2 hydrants; 10 services,  $\frac{1}{2}$  in. galv. iron pipe. **Pressure**: 50 lbs. **Financial**: revenue from consumers, \$100. **Rates**: flat rate, \$10 per dwelling. Owner: J. A. McLaughlin.

**WARWICK**, Arthabaska co., (1,000). In operation since 1910; owned by municipality. **Supply**: by gravity from springs, 1½ miles distant, and pumped into mains and reservoir: water-power used, 15 h.p. **Reservoir**: 1, of 95,000 gal. capacity. **Distribution**: 3½ miles of 6 in. C. I. mains; 14 hydrants; 175 services, 1 in. iron pipe. **Pressure**: 95 lbs. **Financial**: cost of supply plant, \$1,500; cost of distribution system, \$15,000; annual maintenance, \$50; interest, \$825; revenue, \$1,500. **Rates**: flat rate, \$6 to \$10 per dwelling.

**WATERLOO**, Shefford co., (2,000). In operation since 1890; owned by municipality. **Supply**: pumped from springs, ½ mile distant to reservoir and mains; steam power used, 40 h. p.; pumps are in duplicate. **Reservoir**: 1, of 370,000 gal. capacity. **Distribution**: 4 miles of C. I. mains, 3 in. to 10 in.; 40 hydrants; 300 services. **Pressure**: 65 lbs. **Financial**: total cost of plant, \$30,000; annual maintenance, \$500; revenue, \$3,500. **Rates**: flat rate, \$8 per dwelling; meter rate, 20c. per 1,000 gal. Officer in charge: T. Lajoie, Superintendent.

**WATERVILLE**, Compton co., (1,000). In operation since 1902; owned by Waterville Water Works, Ltd. **Supply**: by gravity from springs, 1 mile distant, with an auxiliary plant to pump water from Coaticook river. **Purification**: charcoal and brick filter used. **Reservoir**: 1, of 125,000 gal. capacity. **Distribution**: 3 miles of C. I. and W. I. mains, 4 in. and 6 in.; 15 hydrants; 150 services, ½ in. pipe. **Pressure**: 80 lbs. **Consumption**: 35,000 gal. **Financial**: cost of supply plant, \$10,000; cost of distribution system, \$10,000; annual revenue from consumers, \$2,200; from public uses, \$500. **Rates**: flat rate, \$12 per dwelling.

**WEEDON CENTRE**, Wolfe co., (1,000). Owned by P. Fortin. **Supply**: by gravity from springs, ½ mile distant. **Distribution**: ½ mile of 4 in. W. I. mains; 50 services.

**WESTMOUNT**, Hochelaga co., (18,500). City supplied with water by Montreal Water & Power Company's system, *q.v.* under *Montreal*.

**WEST SHEFFORD**, Shefford co., (300). In operation since 1906; privately owned. **Supply**: by gravity from springs, 1½ miles distant. **Distribution**: 2 miles of C. I. mains, 2 in. to 3 in.; 60 services, ½ in. galv. iron pipe. **Pressure**: 40 lbs. **Financial**: total cost of plant, \$4,000; annual maintenance \$60; revenue \$550. **Rates**: flat rate, \$7 per dwelling. Owned by Louis Gauthier, St. Pie, Que.

**WINDSOR**, Richmond co., (2,300). In operation since 1900; owned by municipality. **Supply**: partly by gravity from springs,  $3\frac{1}{2}$  miles distant, and partly pumped from Watopekah river,  $\frac{1}{2}$  mile distant, to reservoir. **Filter**: mechanical gravity filter used. **Reservoir**: 1, 53 ft.  $\times$  62 ft. **Distribution**: 3 miles of C. I. mains, 4 in. to 8 in.; 27 hydrants; 400 services. **Pressure**: ordinary, 15 to 60 lbs.; fire, 40 to 75 lbs. **Consumption**: 125,000 gal. **Financial**: total cost of supply plant, \$30,000; cost of distribution system, \$30,000; annual maintenance, \$1,000; revenue, \$2,900. **Rates**: flat rate, \$6 for kitchen tap; \$5 for bathroom. Officer in charge: M. Bégin, Superintendent.

**YAMACHICHE**, St. Maurice co., (1,200). In operation since 1889; owned by Bellemare & Vaillancourt. **Supply**: pumped from Yamachiche river,  $1\frac{1}{2}$  miles distant, to tank; gasoline engine used, 10 h.p. **Reservoir**: 1, of 23,000 gal. capacity. **Distribution**:  $2\frac{1}{2}$  miles of wooden, W. I. and C. I. mains, 2 in. and 4 in.; 14 wells for fire protection, 210 services. **Pressure**: ordinary, 10 lbs.; fire, 25 lbs. **Financial**: cost of plant, \$12,000; annual maintenance, \$300; revenue, \$1,600. **Rates**: flat rate, \$8 per tap.

**YAMASKA**, Yamaska co., (300). In operation since 1896; owned by Yamaska Water-Works. **Supply**: pumped from Yamaska river to reservoir; 5 h.p. gasoline engine used. **Reservoir**: 15 ft.  $\times$  20 ft. **Distribution**: 1 mile of 2 in. wooden and iron mains; 77 services. **Pressure**: 17 lbs. **Consumption**: 10,000 gal. **Financial**: annual revenue, \$700. **Rates**: flat rate, \$6 to \$10 per dwelling.

## ONTARIO

**ALEXANDRIA**, Glengarry co., (2,557). In operation since 1893; owned by municipality. **Supply**: pumped from Delisle river,  $\frac{1}{2}$  mile distant, to stand-pipe or directly into mains; steam power used, maximum 200 h.p.; average, 75 h.p.; boilers and pumps are in duplicate. **Reservoir**: stand-pipe, 96,000 gal. capacity. **Distribution**: 3 miles C. I. mains, 33 hydrants; 216 services,  $\frac{1}{2}$  in. galv. iron and lead pipes. **Pressure**: ordinary, 56 lbs.; fire, 110 lbs. **Consumption**: 300,000 gal. **Financial**: cost of plant, \$26,000; annual maintenance, \$3,771; interest, \$1,178 revenue from consumers, \$3,233; from public uses, \$1,360. **Rates**: flat rate, 8¢ per dwelling; 8¢ for bath-room; meter rate, 17¢ to 30¢ per 1,000 gal. Officer in charge: D. A. McDonald, Town Foreman.

**ALLISTON**, Simcoe co., (1,400). In operation since 1891; owned by municipality. **Supply**: pumped from artesian wells, 500 ft. distant, to stand-pipe, steam power used, 50 h.p.; pumps are in duplicate. **Reservoir**: stand-pipe of 100,000 gal. capacity. **Distribution**: 5 miles of C. I. mains, 4 in. to 8 in.; 30 hydrants; 85 services,  $\frac{1}{2}$  in. to 1 in. pipe. **Pressure**: ordinary, 60 lbs.; fire, 90 to 100 lbs. **Consumption**: 125,000 gal. **Financial**: cost of supply plant, \$7,000; cost of distribution system, \$19,341; annual maintenance, \$1,370; revenue from consumers, \$1,600; from public uses, \$1,200. **Rates**: flat and meter rates; meter rate, 8¢ per 1,000 gal. Officer in charge: J. Smalley.

**ALVINSTON**, Lambton co., (841). In operation since 1893; pumping plant owned by Grand Trunk railway; distribution system owned by municipality. **Supply**: pumped from Sydenham river, 1,500 ft. distant, directly into mains; steam power used, 10 h.p.; pumps are in duplicate. **Distribution**:  $\frac{1}{2}$  mile of C. I. mains, 3 in. and 4 in.; 7 hydrants. **Pressure**: 40 lbs. to 120 lbs. **Financial**: cost of supply plant, \$800; cost of distribution system, \$900; annual maintenance, \$513. Used for fire protection only. Officer in charge: H. C. Pray.

**AMHERSTBURG**, Essex co., (2,547). In operation since 1891; owned by municipality. **Supply**: pumped from Detroit river to tank or directly into mains; steam power used, the pumps and boilers being in duplicate; capacity of each pump, 1,125,000 gal. **Purification**: water treated with hypochlorite of lime. **Reservoir**: one tank of 68,000 gal. capacity. **Distribution**: 4½ miles of mains, 4 in. to 10 in.; 46 hydrants; 650 services;  $\frac{1}{2}$  in. and  $\frac{3}{4}$  in. galv. iron pipe. **Pressure**: ordinary, 30 lbs.; fire, 90 to 120 lbs. **Consumption**: 500,000 gal. **Financial**: total cost of plant,

## WATER-WORKS OF ONTARIO

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**BRAMPTON**, York co., (3,200). In operation since 1890; owned by municipality. **Supply:** pumped from artesian wells, 1 mile distant, to stand-pipe and mains; steam and electric power used, 80 h.p.; pumps in duplicate. **Filter:** sand filter. **Reservoir:** stand-pipe of 80,000 gal. capacity. **Distribution:** 8 miles of C. I. mains, 4 in. to 10 in.; 70 hydrants; 900 services, lead pipe. **Pressure:** ordinary, 70 lbs.; fire, 120 lbs. **Consumption:** 340,000 gal. **Financial:** cost of supply plant, \$34,016; cost of distribution system, \$59,641; annual maintenance, \$6,900; interest, \$2,077; revenue from consumers, \$7,712; from public uses, \$2,345. **Rates:** flat rate based on number of rooms, \$4 and upward per dwelling; bath-room, \$5. Officer in charge: G. E. Pulsford, Town Clerk.

**ARNPRIOR**, Renfrew co., (3,200). In operation since 1901; owned by municipality. **Supply:** pumped from Madawaska river, ½ mile distant, to stand-pipe and mains; steam and electric power used, 80 h.p.; pumps in duplicate. **Filter:** sand filter. **Reservoir:** stand-pipe of 80,000 gal. capacity. **Distribution:** 8 miles of C. I. mains, 4 in. to 10 in.; 70 hydrants; 900 services, lead pipe. **Pressure:** ordinary, 70 lbs.; fire, 120 lbs. **Consumption:** 340,000 gal. **Financial:** cost of supply plant, \$34,016; cost of distribution system, \$59,641; annual maintenance, \$6,900; interest, \$2,077; revenue from consumers, \$7,712; from public uses, \$2,345. **Rates:** flat rate based on number of rooms, \$4 and upward per dwelling; bath-room, \$5. Officer in charge: R. J. Riddell, Inspector.

**AURORA**, York co., (2,350). In operation since 1888, owned by municipality. **Supply:** pumped from artesian wells to tank; electric power used, 70 h.p.; motors and pumps are in duplicate. **Reservoirs:** 2, each of 50,000 gal. capacity. **Distribution:** 6½ miles of C. I. and galv. iron mains, 2½ in. to 6 in.; 30 hydrants; 420 services, ½ in. and ½ in. galv. iron pipe. **Pressure:** ordinary, 35 lbs.; fire, 125 lbs. **Consumption:** 130,000 gal. **Financial:** total cost of plant, \$35,000; annual maintenance, \$1,300; revenue, \$2,200. **Rates:** flat rate, \$4 for first tap; bath-room, \$4. Officer in charge: C. A. Petch, Engineer.

**AYLMER**, Elgin co., (2,270). In operation since 1886, owned by municipality. **Supply:** by gravity from wells and springs, 2 miles distant, to pumping station, thence pumped to stand-pipe; steam power used, average 100 h.p.; maximum, 300 h.p.; boilers and pumps are in duplicate. **Reservoir:** 2, capacity, 250,000 gal. each. **Distribution:** 4½ miles of C. I. mains; 49 hydrants; 475 services, iron pipe. **Pressure:** ordinary, 48 lbs.; fire, 100 lbs. **Consumption:** 150,000 gal. **Financial:** total cost of plant, \$74,000; annual maintenance, \$2,600; revenue from consumers, \$3,243; from public uses, \$2,400. **Rates:** meter rate, 5c. to 35c. per 1,000 gal. Officer in charge: D. C. Davis, Secretary.

**BARRIE**, Simcoe co., (7,600). In operation since 1890; owned by municipality. **Supply:** pumped from artesian wells, at centre of distribution, to stand-pipe; steam power used, 40 h.p.; boilers and pumps are in duplicate. **Reservoirs:** 2 of 193,000 gal. total capacity; 1



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stand-pipe of 153,000 gal capacity. **Distribution:** 20 miles of C. I. mains, 4 in. to 12 in.; 107 hydrants; 1,500 services, 1 in. galv. iron pipe. **Pressure:** ordinary, 78 lbs.; fire 120 lbs. **Consumption:** 220,000 gal. **Financial:** total cost of plant, \$120,000; annual maintenance, \$5,487; interest and debentures, \$6,362; revenue from consumers, \$10,023; from public uses, \$3,675; **Rates:** flat rate, \$3.60 for first tap, \$4.77 for bath-room; meter rate, 17c. to 26c. per 1,000 gal. less 20 per cent discount. Officer in charge: J. A. Hare, Superintendent.

**BEAMSVILLE**, Lincoln co., (998). In operation since 1895; owned by municipality. **Supply:** by gravity from springs 1½ miles distant. **Reservoirs:** 2 of 600,000 gal. and 3,500,000 gal. capacity, respectively. **Distribution:** 2½ miles of C. I. mains, 4 in. to 10 in.; 30 hydrants; 146 services, ½ in. pipe. **Pressure:** ordinary, 80 lbs.; fire, 40 lbs. **Financial:** annual maintenance, \$427; revenue, \$957. **Rates:** flat rate, \$5 per dwelling; bath-room, \$4. Officer in charge: W. D. Fairbrother, Clerk.

**BEETON**, Simcoe co., (700). In operation since 1894; owned by municipality. **Supply:** by gravity from springs 1½ miles distant. **Reservoir:** 1 of 95,000 gal. capacity. **Distribution:** 2 miles of C. I. mains, 4 in to 12 in.; 25 hydrants; 130 services; galv. iron pipe. **Pressure:** ordinary, 75 lbs.; fire, 86 lbs. **Financial:** total cost of plant, \$14,500; annual revenue from consumers, \$1,021; from public uses, \$1,084. **Rates:** flat rate, \$4 for first tap, \$1 for each additional.

**BELLEVILLE**, Hastings co., (11,870). In operation since 1888; owned by municipality. **Supply:** pumped from bay of Quinte, 1½ miles distant, to stand-pipe and mains; steam and electric power used, average, 70 h.p.; maximum, 110 h.p.; steam pumps are in duplicate. **Reservoir:** stand-pipe of 365,000 gal. capacity. **Distribution:** 17 miles of C. I. mains, 4 in. to 16 in.; 230 hydrants; 2,400 services, galv. iron pipe. **Pressure:** ordinary, 80 lbs.; fire, 125 lbs. **Consumption:** 1,100,000 gal. **Financial:** total cost of plant, \$222,000; annual maintenance, \$6,500, interest, \$11,000; revenue from consumers, \$23,000; from public uses; \$5,000. **Rates:** flat rate, \$5 and upward per dwelling; bath-room, \$7; meter rate, 10c. to 30c. per 1,000 gal. Officer in charge: J. W. Evans, City Engineer.

**BERLIN**, Waterloo co., (18,300). In operation since 1888; owned by municipality. **Supply:** pumped from artesian wells, 2 miles distant, to stand-pipe; electric power used with steam and gasoline auxiliary, maximum, 470 h.p.; average 75 h.p. **Reservoir:** stand-pipe of 500,000

gal. capacity; storage reservoir, 1,500,000 gal. **Distribution:** 36½ miles of C. I. and W. I. mains, 1 in. to 16 in.; 271 hydrants; 3,384 services, ½ in. to 1 in. lead and iron pipes. **Pressure:** ordinary, 75 lbs.; fire, 115 lbs. **Consumption:** 1,039,000 gal. **Financial:** total cost of plant, \$367,559; annual maintenance, \$16,428; interest, \$5,242; revenue from consumers, \$31,300; from public uses, \$5,129. **Rates:** flat rate, \$4 per tap, meter rate, 6c. to 18c. per 1,000 gal. Officer in charge: H. Hymmen, Superintendent.

**BLYTH**, Huron co., (700). In operation since 1911; owned by municipality. Water not used for domestic purposes. **Supply:** pumped from Blyth creek directly into mains; steam power used, average, 40 h.p.; maximum, 80 h.p. **Distribution:** 1½ miles of 4 in. iron and steel mains; 13 hydrants; 16 services (for lawns). **Pressure:** ordinary, 115 lbs., fire, 130 lbs. **Financial:** cost of plant, \$5,000; annual revenue from consumers, \$80; from public uses, \$80. **Rates:** flat rate, \$5 per service. Officer in charge: A. Elder, Clerk.

**BOTHWELL**, Kent co., (750). In operation since 1908; owned by municipality. **Supply:** pumped from wells to reservoir; steam power used, 30 h.p. **Reservoir:** 1 of 100,000 gal. **Distribution:** 1 mile of iron main, 4 in. and 6 in.; 13 hydrants. **Pressure:** 90 lbs. **Financial:** total cost of plant, \$5,000. Used for fire protection only. Officer in charge: M. Blyth.

**BOWMANVILLE**, Durham co., (3,500). In operation since 1914; owned by municipality. **Supply:** by gravity from Skinners spring, 8 miles distant, to reservoir; 100 h.p., electric pumping plant used for fire purposes. **Distribution:** 8 miles of iron mains, 4 in. to 8 in.; 55 hydrants; services not all installed. **Pressure:** ordinary, 70 lbs.; fire 140 lbs. Officer in charge: J. Lyle, Clerk.

**BRACEBRIDGE**, Muskoka district, (3,000). In operation since 1895; owned by municipality. **Supply:** by gravity from artesian wells, ½ mile distant, to reservoir, thence pumped directly into mains, electric and water-power used, maximum 150 h.p., average 65 h.p.; pumps and water wheels are in duplicate. **Reservoir:** duplicate reservoir of 430,000 gal. capacity. **Distribution:** 4½ miles of C. I. mains, 4 in. to 8 in.; 52 hydrants; 530 services, ½ in. galv. iron pipe. **Pressure:** ordinary, 70 lbs.; fire 100 to 120 lbs. **Consumption:** 64,000 gal. **Financial:** total cost of plant, \$44,162; annual maintenance, \$2,690; revenue from consumers, \$3,407; from public uses, \$1,256. **Rates:** flat rate of \$6 and upward per dwelling, \$4 for bath-room. Officer in charge: W. C. Simmons.

**BRAMPTON**, Peel co., (3,412). In operation since 1882; owned by municipality. **Supply**: pumped from artesian wells,  $3\frac{1}{2}$  miles distant, or from lake in an emergency to reservoir; electric power used, average, 40 h.p.; pumping machinery in duplicate. **Reservoir**: 1 of 1,440,000 gal. capacity. **Distribution**: 13 miles of C. I. mains, 3 in. to 12 in.; 79 hydrants; 850 services,  $\frac{1}{2}$  in. lead and galv. iron pipes. **Pressure**: 50 lbs. to 63 lbs. **Consumption**: 240,000 gal. **Financial**: cost of supply plant, \$25,000; cost of distribution system, \$115,000; annual maintenance, \$3,600; interest, \$1,200; revenue from consumers, \$8,000; from public uses, \$3,200. **Rates**: meter rate, 6c. to 30c. per 1,000 gal. Officer in charge: W. M. Treadgold, Town Engineer.

**BRANTFORD**, Brant co., (24,500). In operation since 1889; owned by municipality. **Supply**: collecting galleries to wells 2 miles distant, thence pumped directly into mains; steam and electric power used, 350 h.p.; pumps are in duplicate. **Distribution**: 57 miles of C. I. and steel mains, 4 in. to 20 in.; 313 hydrants; 6,448 services,  $\frac{1}{2}$  in. and  $1\frac{1}{2}$  in. lead pipe. **Pressure**: ordinary, 85 lbs.; fire 125 lbs. **Consumption**: 3,153,833 gal. **Financial**: total cost of plant, \$630,744; annual maintenance, \$26,613; interest, \$21,349; annual revenue, from consumers, \$57,832; from public uses, \$21,385. **Rates**: flat rate, \$1.50 to \$4 per dwelling, \$5 for bath-room; meter rate 8c. to 20.8c. per 1,000 gal. Officer in charge: F. W. Frank, Manager.

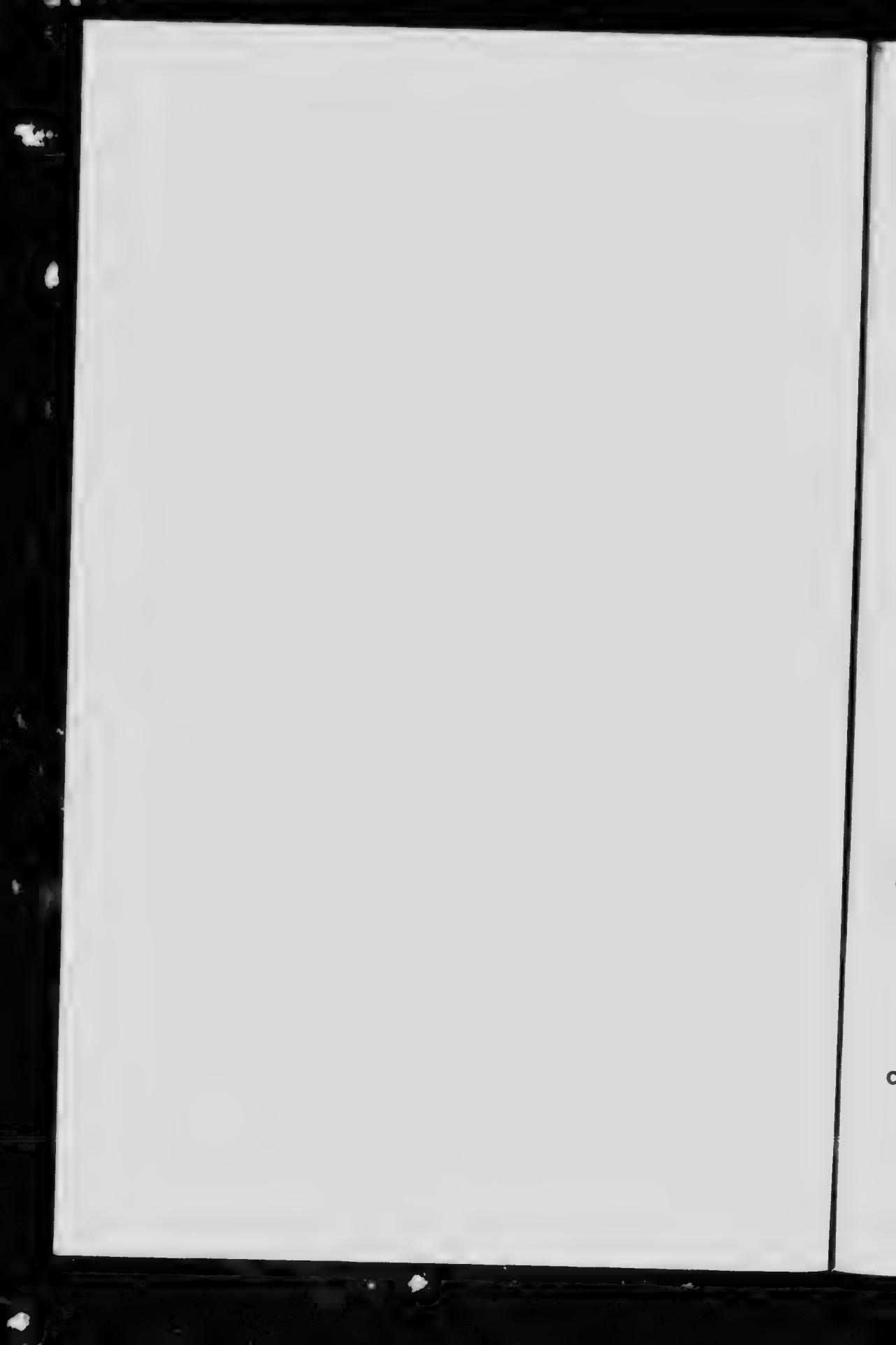
**BRIDGEBURG**, Welland co., (2,110). In operation since 1903; owned by municipality. **Supply**: pumped from Niagara river,  $\frac{1}{2}$  mile distant, to stand-pipe; gas power used, maximum, 70 h.p.; average, 50 h.p.; engines and pumps are in duplicate. **Reservoir**: 1 stand-pipe 140,000 gal. capacity. **Distribution**: 7 miles of C. I. and W. I. mains, 2 in. to 8 in.; 46 hydrants; 520 services, lead pipe. **Pressure**: ordinary, 20 to 45 lbs.; fire, 100 to 180 lbs. **Consumption**: 500,000 gal. **Financial**: cost of supply plant, \$10,000; cost of distribution system \$44,352; annual maintenance, \$4,378; revenue, \$5,890. **Rates**: flat rate, \$4 per dwelling, \$2 for bath-room. Officer in charge: R. A. Land, Water Commissioner.

**BRIGHTON**, Northumberland co., (2,000). In operation since 1913; owned by municipality. **Supply**: by gravity from springs, 2 miles distant. **Reservoir**: 1 of 2,000,000 gal. capacity. **Distribution**: 7 miles of steel mains, 6 in. to 10 in.; 41 hydrants; 100 services,  $\frac{1}{2}$  in. galv. iron pipe. **Pressure**: 85 lbs. **Financial**: total cost of plant, \$50,000; annual revenue, \$2,200. **Rates**: flat rate, \$5 to \$10 per dwelling. Officer in charge: R. McLaren, Water Commissioner.



*Commission of Conservation*

Berlin Water-works—500,000 gal. Concrete Elevated Water-tower



## WATER-WORKS OF ONTARIO

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**BROCKVILLE**, Leeds co., (10,100). In operation since 1882; owned by municipality. **Supply**: pumped from St. Lawrence river directly into mains; steam and electric power used, 100 h.p. **Distribution**: 20½ miles of C. I. mains, 4 in. to 24 in.; 121 hydrants; 2,494 services, lead and galv. iron pipes. **Pressure**: ordinary, 65 lbs.; fire, 100 lbs. **Consumption**: 2,682,750 gal. **Financial**: total cost of plant, \$280,764; annual maintenance, \$14,840; revenue from consumers, \$24,100; from public uses, \$13,667. **Rates**: flat rate, \$3.80 and upward per dwelling; bath-room, \$3.80. Officer in charge: Robt. Picken, Superintendent.

**BURKS FALLS**, Parry Sound dist., (1,015). In operation since 1905; owned by municipality. **Supply**: by gravity from Reazen lake, 3 miles distant. **Purification**: filter being installed. **Distribution**: 5½ miles of C. I. mains, 6 in. and 8 in.; 25 hydrants; 160 services. **Pressure**: ordinary, 60 lbs.; fire, 125 lbs. **Consumption**: 30,000 gal. **Financial**: cost of plant, \$34,000; annual maintenance, \$300; revenue from consumers, \$1,325; from public uses, \$350. **Rates**: flat rate, \$6.50 and upward per dwelling based on number of rooms; bath-room, \$4.50. Officer in charge: F. Johnson.

**BURLINGTON**, Halton co., (2,074). In operation since 1910; owned by municipality. **Supply**: pumped from lake Ontario, through sand and gravel, to stand-pipe, electric power used, 50 h.p.; pumping apparatus in duplicate. **Reservoir**: stand-pipe, 100,000 gal. capacity. **Distribution**: 9½ miles of C. I. mains, 4 in. to 8 in.; 70 hydrants; 413 services, lead pipe. **Pressure**: ordinary, 48 lbs.; fire, 140 lbs. **Consumption**: 240,000 gal. **Financial**: cost of supply plant, \$7,000; cost of distribution system, \$52,000; annual revenue, \$4,500. **Rates**: meter rate, 10c. to 33c. per 1,000 gal., minimum, \$7.80 per dwelling. Officer in charge: P. Dawson, Secretary-treasurer.

**CALEDONIA**, Haldimand co., (1,000). In operation since 1870; owned by Grand Trunk railway. **Supply**: pumped from Grand river, ½ mile distant, to reservoir; steam power used, 32 h.p.; engines in duplicate. **Reservoir**: 1 of 25,000 gal. capacity. **Distribution**: ½ mile of 4 in. C. I. mains; 7 hydrants; 25 services. **Pressure**: ordinary, 60 lbs., fire, 80 lbs. **Financial**: annual maintenance, \$1,600; revenue from consumers, \$225; from public uses, \$25. **Rates**: flat rate, \$10 per dwelling. Officer in charge: A. W. Davis.

**CAMPBELLFORD**, Northumberland co., (3,000). In operation since 1890; owned by municipality. **Supply**: pumped from Trent river,

directly into mains, electric power used; maximum, 125 h.p.; average, 50 h.p.; 2 separate pump units. **Distribution:** 3½ miles of C. I. mains: 4 in. to 8 in.; 36 hydrants; 225 services, ½ in. galv. iron pipe. **Pressure:** ordinary, 80 lbs.; fire, 125 lbs. **Financial:** cost of supply plant, \$5,000; cost of distribution system, \$25,800; annual maintenance, \$1,303; revenue, \$1,630. **Rates:** flat rate, 85 per dwelling, including bathroom. Water not used for drinking purposes. Officer in charge, E. E. Plummer.

**CARDINAL**, Grenville co., (1,200). In operation since 1894; owned by Canada Starch Co. **Supply:** pumped from St. Lawrence river, 900 ft. distant, to tank, or directly into mains; steam and water-power used, maximum 60 h. p., average, 30 h. p.; pumps are in duplicate. **Filter:** pressure filter. **Reservoir:** 1, capacity 100,000 gal. **Distribution:** 3 miles of C. I. mains, 1 in. to 6 in.; 9 hydrants; 230 services, W. I. pipe. **Pressure:** ordinary, 40 lbs.; fire, 100 lbs. **Financial:** revenue from consumers, \$1,268; from public uses, \$672. **Rates:** flat rate, 85 for first tap, \$2 for each additional.

**CARLETON PLACE**, Lanark co., (4,000). In operation since 1915; owned by municipality. **Supply:** pumped from Mississippi river, ½ mile distant, to steel tank; electric power used, 35 h.p. **Purification:** proposed pressure filters. **Reservoir:** steel tank of 108,000 gal. capacity. **Distribution:** 3½ miles of steel mains, 6 in. to 12 in.; 58 hydrants; 200 services, ½ in. galv. iron pipe; the installation of services is not yet completed. **Pressure:** ordinary, 44 lbs; fire, 91 lbs. **Financial:** cost of supply plant, \$17,000; cost of distribution system, \$47,300. Officer in charge: B. G. Michel, Town Engineer.

**CHATHAM**, Kent co., (12,000). In operation since 1891; owned by municipality. **Supply:** pumped from Thames river, ½ mile distant, to stand-pipe; steam power maximum, 150 h.p., average, 100 h.p. boilers are in duplicate. **Purification:** sedimentation basin and mechanical filters used. **Reservoirs:** sedimentation basin, 8,000,000 gal. capacity; stand-pipe, 190,000 gal. **Distribution:** 35 miles C. I. and W. I. mains, ½ in. to 12 in.; 203 hydrants; 2,550 services, ½ in. galv. iron pipe. **Pressure:** ordinary, 40 lbs.; fire, 110 lbs. **Consumption:** 946,428 gal. **Financial:** total cost of plant, \$225,000; annual maintenance, \$12,035; interest and debentures, \$10,121; revenue from consumers, \$23,363; from public uses, \$6,811. **Rates:** meter rate, 7c. to 17½c. per 1,000 gal. Officer in charge: F. P. Adams, City Engineer.

**CHESLEY**, Bruce co., (1,200). In operation since 1909; owned by municipality. **Supply:** pumped from artesian wells ½ mile distant, to

stand-pipe; gas and oil engines used, average, 65 h.p., maximum, 120 h.p., engines in duplicate. **Reservoir**: 1, 30 ft.  $\times$  30 ft. **Distribution**: 4½ miles of C. I. mains, 4 in. to 10 in.; 40 hydrants; 300 services, galv. iron pipe. **Pressure**: ordinary, 70 lbs.; fire, 125 lbs. **Consumption**: 200,000 gal. **Financial**: cost of supply plant, \$10,000; cost of distribution system, \$38,000; annual maintenance, \$1,300; interest, \$1,887; revenue from consumers, \$1,862; from public uses, \$850. **Rates**: flat rate, \$4 for first tap. Officer in charge: R. T. Kidd, Town Engineer.

**CLINTON**, Huron co., (2,300). In operation since 1909; owned by municipality. **Supply**: pumped from deep wells to stand-pipe and mains; electric power used with gasoline engine auxiliary, 10 h.p. to 80 h.p. **Reservoirs**: 1 of 75,000 gal., and 1 stand-pipe of 100,000 gal., capacity. **Distribution**: 6 miles of C. I. mains, 4 in. to 10 in.; 56 hydrants; 435 services, ½ in. galv. iron pipe. **Pressure**: ordinary, 60 lbs.; fire, 120 lbs. **Consumption**: 50,000 gal. **Financial**: total cost of plant, \$62,000; annual maintenance, \$1,250; revenue from consumers, \$3,000; from public uses, \$300. **Rates**: flat rate, \$5.50 per dwelling; meter rate, 24c. per 1,000 gal. Officer in charge: H. B. Chant, Superintendent.

**COBALT**, Nipissing dist., (5,500). In operation since 1910; owned by municipality. **Supply**: pumped from Sasaginaga lake, ½ mile distant, to stand-pipe; electric power used, average, 60 h.p.; pumping apparatus in duplicate. **Reservoir**: stand-pipe of 184,000 gal. capacity. **Distribution**: 4 miles of C. I. mains, 4 in. to 10 in.; 46 hydrants; 750 services, galv. iron pipe. **Pressure**: 70 lbs. **Consumption**: 700,000 gal. **Financial**: cost of supply plant, \$15,000; cost of distribution system, \$60,000; annual maintenance, \$8,000; interest, \$4,140; revenue from consumers, \$14,000; from public uses, \$500. **Rates**: flat rate, \$9 per dwelling; meter rate, 15c. to 30c. per 1,000 gal. Officer in charge: R. L. O'Gorman, Secretary-treasurer.

**COBOURG**, Northumberland co., (5,000). In operation since 1889; owned by Cobourg Utilities Corporation, Ltd. **Supply**: pumped from lake Ontario, 1½ miles distant, directly into mains; steam and electric power used, 50 h.p. to 125 h.p.; pumping apparatus in duplicate. **Purification**: pressure filters used. **Distribution**: 12 miles of C. I. mains, 4 in. to 12 in.; 87 hydrants; 940 services, galv. iron pipe. **Pressure**: ordinary, 79 lbs.; fire, 110 lbs. **Consumption**: 800,000 gal. **Financial**: cost of supply plant, \$95,000; cost of distribution system, \$146,000; annual maintenance, \$8,200; revenue from consumers,

\$16,000; from public uses, \$3,155. **Rates:** flat rate, \$5 and upward per dwelling; bath-room \$6.50; meter rate, 10c. to 25c. per 1,000 gal.

**COCHRANE**, Timiskaming dist., (2,500). In operation since 1912; owned by municipality. **Supply:** pumped from spring,  $\frac{1}{2}$  mile distant, to tank and mains; electric power used. **Reservoir:** tank of 80,000 gal. capacity. **Distribution:** 4½ miles of C. I. mains, 4 in. to 8 in.; 45 hydrants; 160 services. **Pressure:** ordinary, 50 lbs.; fire, 100 lbs. **Consumption:** 200,000 gal. **Financial:** cost of supply plant, \$4,000; cost of distribution system and sewers, \$100,000; annual maintenance, \$3,000; revenue, \$3,000. **Rates:** flat rate, average \$15 per dwelling. Officer in charge: F. Graff, Superintendent.

**COLDWATER**, Simcoe co., (609). Owned by municipality. **Supply:** by gravity from springs, 1½ miles distant. **Distribution:** iron mains; 24 hydrants; 95 services, galv. iron pipe. **Pressure:** 60 lbs. **Financial:** cost of plant, \$23,000; annual revenue, \$500. **Rates:** flat rate.

**COLLINGWOOD**, Simcoe co., (7,800). In operation since 1889; owned by municipality. **Supply:** pumped from Georgian bay, 1½ miles distant, directly into mains; steam power used, average, 50 h. p., maximum, 150 h. p. **Distribution:** 21 miles of C. I. mains, 4 in. to 10 in.; 91 hydrants; 1,755 services, galv. iron pipe. **Pressure:** ordinary, 45 lbs.; fire, 125 lbs. **Consumption:** 700,000 gal. **Financial:** cost of supply plant, \$12,500; cost of distribution system, \$62,500; annual maintenance, \$12,000; revenue from consumers, \$11,159; from public uses, \$4,100. **Rates:** flat rate based on number of rooms. Officer in charge: E. J. Stapleton, Superintendent.

**CORNWALL**, Stormont co., (7,500). In operation since 1887; owned by municipality. **Supply:** pumped from St. Lawrence river,  $\frac{1}{2}$  mile distant, to stand-pipe; steam and water-power used, 125 h. p. **Reservoir:** stand-pipe of 235,000 gal. capacity. **Distribution:** 23 miles of C. I. mains, 2 in. to 14 in.; 103 hydrants; 1,700 services, ½ in. galv. iron pipe. **Pressure:** ordinary, 73 lbs.; fire, 110 lbs. **Consumption:** 1,500,000 gal. **Financial:** cost of supply plant, \$30,000; cost of distribution system, \$150,000; annual maintenance, \$5,000; revenue, \$18,000. **Rates:** flat rate, \$6 for first tap; bath-room, \$6.50; meter rate, 25c. per 1,000 gal. Officer in charge: C. A. Mount, Superintendent.

**CREEMORE**, Simcoe co., (620). In operation since 1905; owned by municipality. **Supply:** by gravity from springs, 2 miles distant. **Reservoir:** 1, 20 ft.  $\times$  30 ft. **Distribution:** 3 miles of iron, wooden and tile

## WATER-WORKS OF ONTARIO

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**mains**, 4 in. to 8 in.; 15 hydrants; 110 services,  $\frac{1}{2}$  in. pipe. **Pressure**: ordinary, 87 to 110 lbs.; fire, 90 lbs. **Financial**: total cost of plant, \$23,000; annual maintenance, \$100; revenue, \$800. **Rates**: flat rate, \$2 to 85 per dwelling. Officer in charge: William Young, Supervisor.

**DRYDEN HARBOUR**, Parry Sound co., (900). In operation since 1898; owned by Grand Trunk Railway Co. **Supply**: pumped from Georgian bay, 1,200 ft. distant, to tanks; steam power used, average, 12 h. p.; maximum, 85 h. p. **Reservoirs**: 2 tanks, 20 ft.  $\times$  30 ft., and 24 ft.  $\times$  18 ft. respectively. **Distribution**: 3 miles of C. I. and W. I. mains, 1 in. to 10 in.; 11 hydrants; 115 services. **Pressure**: ordinary, 40 lbs; fire, 65 lbs. **Consumption**: 100,000 gal. **Rates**: no charges.

**DESERONTO**, Hastings co., (3,000). In operation since 1897; owned by municipality. **Supply**: pumped from bay of Quinte,  $\frac{1}{2}$  mile distant, to stand-pipe; electric and steam power used, average 98 h. p.; pumping apparatus in duplicate. **Reservoir**: stand-pipe, 72,000 gal. **Distribution**: 5 miles of C. I. mains, 4 in. to 10 in.; 60 hydrants; 250 services, galv. iron pipe. **Pressure**: 80 lbs. **Consumption**: 60,000 gal. **Financial**: cost of supply plant, \$10,000; cost of distribution system, \$10,000; annual maintenance, \$3,000; revenue, \$2,000. **Rates**: flat rate, \$5 per tap. Officer in charge: H. R. Bedford, Secretary-treasurer.

**DRESDEN**, Kent co. In operation since 1912; owned by municipality. **Supply**: pumped from Sydenham river, 600 ft. distant, directly into mains; steam power used; pumps, boilers, and suction mains in duplicate. **Distribution**: 3 miles of C. I. mains, 4 in. to 8 in.; 36 hydrants. **Pressure**: 120 lbs. **Financial**: cost of supply plant, \$3,247; cost of distribution system, \$11,370; annual maintenance, \$3; interest, \$708. Used for fire protection and street sprinklers only. Officer in charge: C. Eherlee, Superintendent.

**DUNDAS**, Wentworth co., (4,860). In operation since 1892; owned by municipality. **Supply**: by gravity from spring. **Reservoir**: 1 of 1,000,000 gal. capacity. **Purification**: mechanical filter used. **Distribution**: 9 miles of C. I. and wood mains, 4 in. to 12 in.; 109 hydrants; 425 services, lead and iron pipe. **Pressure**: 75 lbs. **Financial**: total cost of plant, \$88,232; annual maintenance, \$4,360; interest, \$1,839; revenue from consumers, \$3,864; public uses, \$1,640. **Rates**: flat rate, \$6 to \$8 per dwelling, from 10c. to 25c. per 1,000 gal. Officer in charge: J. Wright, Superintendent.

**DUNNVILLE**, Haldimand co., (2,000). In operation since 1892; owned by municipality. **Supply**: pumped from Grand river to

## COMMISSION OF CONSERVATION

or directly into mains, gas engines used with steam auxiliary; average, 55 h.p. maximum, 125 h.p. **Purification:** mechanical filter used. **Reservoir:** elevated tank of 100,000 gal. capacity. **Distribution:** 6 miles of C. I. and W. I. mains, 1½ in. to 8 in., 52 hydrants, 600 services, lead and iron pipe. **Pressure:** ordinary, 40 lbs.; fire, 85 lbs. **Consumption:** 400,000 gal., large portion being supplied to railways and industries. **Financial:** total cost of plant, \$64,103; annual maintenance, \$4,000; interest and debentures, \$2,071; revenue from consumers, \$4,000; from public users, \$1,232. **Rates:** flat rate, \$6.25 for first tap, bath-room, \$3.12. Officer in charge: W. R. McElroy, Superintendent.

**DURHAM**, Grey co., (1,500). In operation since 1906. **Supply:** by gravity from springs, 1 mile distant. **Distribution:** 3 miles of wooden and iron mains; up to 6 in.; 150 services. **Financial:** total cost of plant, \$9,000; annual revenue, \$1,500. **Rates:** flat rate, \$5 to \$20 per dwelling. H. J. Snell, Owner.

**ELMIRA**, Waterloo co., (1,500). In operation since 1907; owned by municipality. **Supply:** pumped from wells, ½ mile distant, to stand-pipe; electric power used, 6 h.p., oil engine for emergency. **Reservoir:** 1 of 62,000 gal. capacity. **Distribution:** 3 miles of C. I. mains, 4 in. to 8 in.; 40 hydrants; 250 services, ½ in. to 1 in. galv. iron pipe. **Pressure:** ordinary, 45 lbs.; fire, 100 to 125 lbs. **Consumption:** 40,000 gal. **Financial:** cost of supply plant, \$4,000; cost of distribution system, \$31,000; annual maintenance, \$1,052; interest and debentures, \$2,027; revenue from consumers, \$1,687; from public users, \$1,660. **Rates:** flat rate, \$5 for first tap, \$1 per additional; meter rate also. Officer in charge: A. L. Ratz, Superintendent.

**ESSEX**, Essex co., (1,380). In operation since 1890; owned by municipality. **Supply:** pumped from artesian wells to reservoir and stand-pipe; gas engine and steam power used, 25 h.p.; pumping apparatus in duplicate. **Reservoir:** 1 of 175,000 gal. capacity. **Distribution:** 4 miles of C. I. mains, 4 in. to 10 in.; 40 hydrants; 350 services, ½ in. lead pipe. **Pressure:** ordinary, 25 lbs.; fire, 85 to 100 lbs. **Consumption:** 65,000 gal. **Financial:** total cost of plant, \$34,000; annual maintenance, \$2,500; revenue, \$3,100. **Rates:** flat rate, \$7 to \$8 per dwelling. Officer in charge: A. Perry.

**EXETER**, Huron co., (1,700). In operation since 1911; owned by municipality. **Supply:** pumped from Au Sable river, ½ mile distant, to tank; gasolene engine and water-power used, average, 50 h.p. **Reser-**

## WATER WORKS OF ONTARIO

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**VOIR**: 1 of 40,000 gal. capacity. **Distribution**: 1½ miles of C. I. mains, 4 in. to 8 in., 30 hydrants, 16 services, 4 in. to 2 in. pipe. **Pressure**: 50 to 100 lbs. **Consumption**: 37,000 gal. **Financial**: total cost of plant, \$28,600; annual maintenance, \$22; revenue, \$1,533. **Rates**: flat rate. Water not used for drinking purposes.

**VERGUS**, Wellington co., (800). In operation since 1913; owned by municipality. **Supply**: pumped from artesian wells, 1 mile distant, to water tower; gas power used; maximum, 40 h.p.; average, 35 h.p. **Reservoirs**: 1 of 100,000 gal. capacity, stand-pipe, 15,000 gal. **Distribution**: 4½ miles of C. I. mains, 6 in. and 8 in., 44 hydrants, 110 services, galv. iron pipe. **Pressure**: ordinary, 65 lbs.; fire, 120 lbs. **Consumption**: 40,000 gal. **Financial**: cost of supply plant, \$10,100; cost of distribution system, \$27,900; annual maintenance, \$800; interest, \$1,750. **Rates**: flat rate, \$5 for first tap. Officer in charge: H. Black, Superintendent.

**WOLD**, Essex co. (See under Walkerville).

**PONT ERIE**, Welland co. (1,410). In operation since 1910; owned by municipality. **Supply**: pumped from Niagara river, 1½ miles distant, to stand-pipe; gas engines used, average, 30 h.p.; engines and pumps are in duplicate. **Reservoir**: stand-pipe, 130,000 gal. capacity. **Distribution**: 10 miles of C. I. mains, 4 in. to 10 in.; 84 hydrants; 405 services, ½ in. galv. iron pipe. **Pressure**: ordinary, 65 lbs.; fire, 120 lbs. **Consumption**: 55,000 gal. **Financial**: total cost of plant, \$61,000; annual maintenance, \$1,200; revenue, \$1,100. **Rates**: flat rate, average \$7 per dwelling. Officer in charge: Town Clerk.

**FORT FRANCES**, Rainy River dist., (1,800). In operation since 1908; owned by municipality. **Supply**: pumped from Rainy river, 1½ miles distant, to tank or directly into mains; electric power and gasoline engine used, average, 25 h.p., maximum, 70 h.p. **Purification**: water treated with hypochlorite of lime. **Reservoir**: 1 of 100,000 gal. capacity. **Distribution**: 5½ miles of C. I. mains, 6 in. to 10 in., 42 hydrants; 325 services, lead pipe. **Pressure**: ordinary, 60 lbs.; fire, 100 lbs. **Consumption**: 150,000 gal. **Financial**: total cost of plant, \$92,349; annual maintenance, \$3,500; revenue from consumers, \$6,500; from public uses, \$1,470. **Rates**: flat rate, \$12 per dwelling. Officer in charge: C. E. Parry, Town Engineer.

**FORT WILLIAM**, Thunder Bay dist., (25,000). In operation since 1908; owned by municipality. **Supply**: by gravity from Loch Lomond, 7 miles distant. **Reservoirs**: Loch Lomond, area, 9 square miles; 1

**concrete reservoir**, capacity, 800,000 gal. **Distribution**: 50½ miles of C. I. mains, 4 in. to 18 in.; 351 hydrants; 5,052 services, ½ in. to 1 in. lead and 4 in. to 8 in. C. I. pipes. **Pressure**: 110 to 125 lbs. **Consumption**: 3,250,000 gal. **Financial**: cost of supply plant, \$900,000; cost of distribution system, \$325,000; annual maintenance, \$39,000; interest, \$52,800; revenue from consumers, \$58,692; from public uses, \$16,400. **Rates**: flat rate, \$8 to \$14 per dwelling; \$6 to \$10 for bath-room; meter rate, 5c. to 14c. per 1,000 gal. Officer in charge: Ray R. Knight, City and Water-works Engineer.

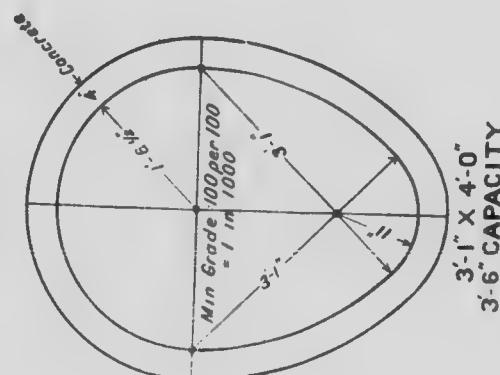
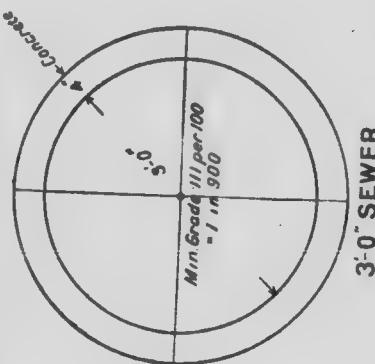
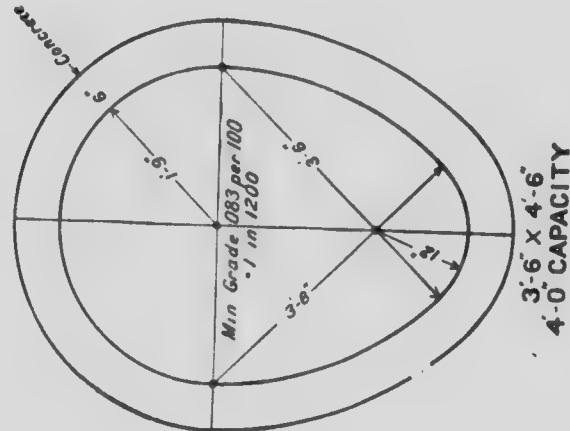
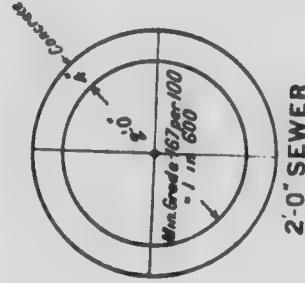
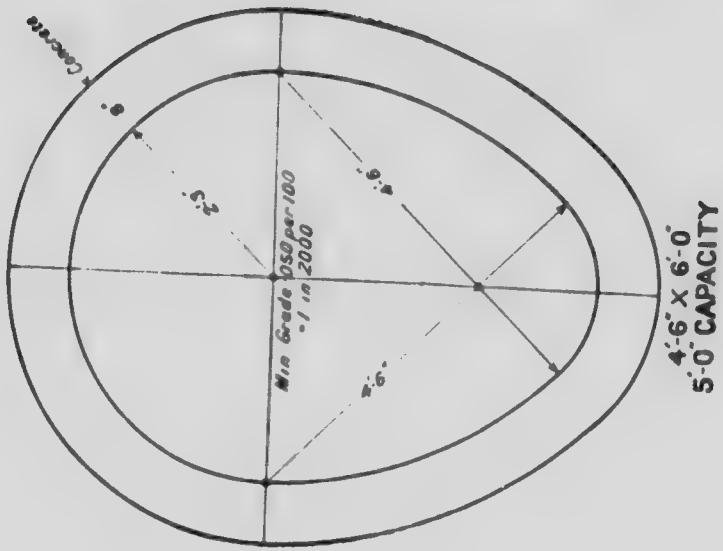
**GALT**, Waterloo co., (10,400). In operation since 1891; owned by municipality. **Supply**: pumped from springs, ½ mile distant, to reservoir, or directly into mains; steam and electric power used, average, 100 h.p.; maximum, 250 h.p.; pumps and boilers are in duplicate. **Reservoir**: one, 180,000 gal. capacity. **Distribution**: 25½ miles of C. I. and steel mains, 4 in. to 18 in.; 200 hydrants; 2,600 services, galv. iron and lead pipes. **Pressure**: ordinary, 100 lbs., fire, up to 130 lbs. **Consumption**: 1,000,000 gal. **Financial**: cost of supply plant, \$40,000; cost of distribution system, \$230,000; annual maintenance, \$8,000; interest and sinking fund, \$13,000; revenue from consumers, \$18,000; from public uses, \$8,000. **Rates**: flat rate, \$3.75 and upward per dwelling; meter rate, 11·2c. to 28·8c. per 1,000 gal. Officer in charge: S. Bartleman, Superintendent.

**GANANOQUE**, Leeds co., (2,800). In operation since 1905; owned by municipality. **Supply**: pumped from St. Lawrence river, 4,000 ft. distant, to stand-pipe; steam power used, average 35 h.p., maximum 50 h.p. **Reservoir**: stand-pipe, 156,000 gal. capacity. **Distribution**: 5½ miles of C. I. mains, 4 in. to 8 in.; 72 hydrants; 521 services, lead pipe. **Pressure**: ordinary, 50 lbs.; fire, 115 lbs. **Consumption**: 179,000 gal. **Financial**: total cost of plant, \$110,000; annual maintenance, \$3,320; interest, \$247; revenue from consumers, \$5,200; from public uses, \$1,200. **Rates**: meter rate, 32c. to 40c. per 1,000 gal., minimum of \$1.66 per quarter. Officer in charge: N. R. Gardner, Superintendent.

**GEORGETOWN**, Halton co., (1,629). In operation since 1892; owned by municipality. **Supply**: by gravity from springs 3 miles distant. **Reservoir**: 1 of 400,000 gal. capacity. **Distribution**: 7½ miles of C. I. mains, 4 in. to 10 in.; 40 hydrants; 275 services, ½ in. to 2 in. galv. iron pipe. **Pressure**: 72 to 118 lbs. **Consumption**: 76,000 gal. **Financial**: total cost of plant, \$43,300; annual maintenance, \$250; revenue, \$3,031. **Rates**: flat rate \$5 plus \$4 for bath-room. Officer in charge: A. McDonald.

**CITY OF WINNIPEG**  
**CROSS SECTIONS OF CONCRETE SEWERS**

Scale: 27 feet = 1 inch





**GODERICH**, Huron co., (5,000). In operation since 1888; owned by municipality. **Supply**: pumped from lake Huron through sedimentation basin,  $\frac{1}{2}$  mile distant, directly into mains or stand-pipe; steam power used, maximum 175 h.p., average 100 h.p.; boilers and pumps are in duplicate. **Reservoir**: stand-pipe of 125,000 gal.; sedimentation basin of 300,000 gal. **Distribution**: 11 $\frac{1}{2}$  miles of C. I. and W. I. mains, 2 in. to 10 in.; 64 hydrants; 1,200 services,  $\frac{1}{2}$  in. lead pipe. **Pressure**: ordinary, 50 lbs.; fire, 80 to 170 lbs. **Consumption**: 500,000 gal. **Financial**: total cost of plant, \$84,092; annual maintenance, \$5,000; interest, \$5,000; annual revenue from consumers, \$8,842; from public uses, \$4,242. **Rates**: flat rate, \$5 per dwelling; bath-room \$6. Officer in charge: J. B. Kelly, Superintendent.

**GORE BAY**, Manitoulin dist., (702). In operation since 1901; owned by J. Fisher. **Supply**: by gravity from springs,  $\frac{1}{2}$  mile distant. **Reservoirs**: 3, total capacity, 5,000 gal. **Distribution**: 2 miles of galv. iron mains, 1 $\frac{1}{2}$  in.; 105 services. **Financial**: total cost of plant, \$5,000; annual maintenance, \$300; revenue, \$1,000. **Rates**: \$7.80 and upward per dwelling.

**GRAVENHURST**, Muskoka dist., (2,000). In operation since 1909; owned by municipality. **Supply**: pumped from Gull lake, 350 ft. distant, directly into mains or tank; electric power used, maximum 65 h.p., average 30 h.p.; pumps are in duplicate. **Reservoir**: tank of 100,000 gal. capacity. **Distribution**: 3 miles of C. I. and galv. iron mains,  $\frac{1}{2}$  in. to 10 in.; 37 hydrants; 200 services,  $\frac{1}{2}$  in. to 1 $\frac{1}{2}$  in. galv. iron pipe. **Pressure**: ordinary, 75 lbs.; fire, 140 lbs. **Consumption**: 60,000 gal. **Financial**: cost of supply plant, \$8,000; cost of distribution system, \$12,000; annual maintenance, \$2,495; interest, \$1,350; revenue, \$2,687. **Rates**: flat rate, \$6 per dwelling. Officer in charge: W. H. Butterworth, Town Clerk.

**GRIMSBY**, Lincoln co., (2,000). In operation since 1905; owned by municipality. **Supply**: pumped from lake Ontario, 200 yds. distant, directly into mains and to reservoirs; electric power used, average, 50 h.p.; pumping apparatus is in duplicate. **Purification**: sedimentation basin. **Reservoir**: 1 of 175,000 gal. capacity. **Distribution**: 35 miles of 4 in. to 8 in. mains; 45 hydrants; 1,000 services. **Pressure**: ordinary 120 lbs.; fire, 150 lbs. **Consumption**: 240,000 gal. **Financial**: cost of supply plant, \$25,000; cost of distribution system, \$30,000; annual maintenance, \$3,000; revenue from consumers, \$5,000; from public uses, \$1,000. **Rates**: flat rate, \$5 per dwelling. Officer in charge: C. H. Bromley, Superintendent.

**GUELPH**, Wellington co., (16,319). In operation since 1879; owned by municipality. **Supply**: by gravity from spring, 4 miles distant, to reservoir, thence pumped to stand-pipe and mains; steam power used, 90 to 120 h.p.; pumps and boilers are in duplicate. **Reservoirs**: stand-pipe 30 ft.  $\times$  100 ft., 440,000 gal., and 2 reservoirs, each of 500,000 gal. capacity. **Distribution**: 34 miles of C. I. mains, 4 in. to 14 in.; 186 hydrants; 4,100 services, galv. iron and lead pipes. **Pressure**: ordinary, 65 to 120 lbs.; fire, 120 lbs. **Consumption**: 1,900,000 gal. **Financial**: total cost of plant, \$383,329; annual maintenance, \$14,629; interest and sinking fund, \$20,871; revenue from consumers, \$30,034; from public uses, \$8,000. **Rates**: meter 8c. to 10c. per 1,000 gal.; flat rate, 45c. per room plus \$4.20 for bath-room. Officer in charge: A. H. Foster, Manager.

**HAILEYBURY**, Nipissing dist., (4,000). In operation since 1909; owned by municipality. **Supply**: pumped from lake Timiskaming, 3,800 ft. distant, to mains; electric power used, average, 133 h.p., maximum, 150 h.p.; pumps are in duplicate. **Reservoir**: 1 of 215,000 gal. capacity. **Purification**: "Bell" mechanical filters used. **Distribution**: 7 miles of C. I. mains, 4 in. to 10 in.; 82 hydrants; 550 services,  $\frac{1}{2}$  in. to 1 in. galv. iron pipe. **Pressure**: ordinary, 70 lbs.; fire, 100 lbs. **Consumption**: 275,000 gal. **Financial**: cost of supply plant, \$44,000, including filtration plant which cost \$22,000; cost of distribution system, \$96,000; annual maintenance, \$5,500; revenue, \$7,300. **Rates**: flat rate, \$6 and upward per dwelling; bath-room, \$7. Officer in charge: T. Lemon, Superintendent.

**HAMILTON**, Wentworth co., (105,000). In operation since 1860; owned by municipality. **Supply**: pumped from lake Ontario, 5 miles distant, into mains; electric power used with steam auxiliary plant, average, 1,200 h.p., maximum, 1,500 h. p. **Reservoir**: emergency reservoir of 11,000,000 gal. and 3 others of 2,000,000 gal., 300,000 gal. and 80,000 gal. capacity respectively. **Purification**: settling basin used. **Distribution**: 179 $\frac{1}{2}$  miles of C. I. mains, 4 in. to 36 in.; 1,782 hydrants; 27,234 services, lead pipe. **Pressure**: ordinary, 75 lbs.; fire, 60 to 100 lbs. **Consumption**: 13,500,000 gal. **Financial**: total cost of plant, \$3,466,156; annual maintenance, \$117,054; interest, \$99,505; revenue, \$289,587. **Rates**: flat rate, on assessment basis up to \$4 per \$1,000; bath-room, \$2.00; meter rate, 7 $\frac{1}{2}$ c. and 10c. per 1,000 gal. Officer in charge: A. F. Macallum, City Engineer.

**HANOVER**, Grey co., (3,500). In operation since 1902; owned by municipality. **Supply**: pumped from Saugeen river at town directly into

mains; water-power used, 45 h.p.; pumps in duplicate. **Distribution:** 6½ miles of C. I. mains, 4 in. to 16 in.; 52 hydrants; 300 services, ½ in. to 2 in. lead and galv. iron pipes. **Pressure:** ordinary, 65 lbs.; fire, 120 lbs. **Financial:** total cost of plant, \$45,000; annual maintenance, \$2,200 (including interest); revenue, \$3,000. **Rates:** flat rate, \$3 for house tap, bath-room, \$5. Officer in charge: J. Taylor, Town Clerk.

**HARRISTON**, Wellington co., (800). In operation since 1912; owned by municipality. **Supply:** pumped from artesian wells, ½ mile distant, to stand-pipe; oil engine used, 10½ h.p. **Reservoir:** stand-pipe, 60,000 gal. capacity. **Distribution:** 4½ miles of C. I. mains, 4 in. to 10 in.; 42 hydrants; 140 services, galv. iron pipe. **Pressure:** ordinary, 50 lbs.; fire, 120 lbs. **Consumption:** 40,000 gal. **Financial:** cost of plant, \$40,000; annual maintenance, \$450; revenue, \$1,500. **Rates:** flat rate, \$5 for first tap; bath-room, \$7. Officer in charge: J. Patterson.

**HAWKESBURY**, Prescott co., (4,000). In operation since 1903; owned by municipality. **Supply:** pumped from Ottawa river, 1 mile distant, to tank; steam power used, average, 47 h.p.; boilers and pumping apparatus in duplicate. **Reservoir:** 1 tank, 80,000 gal. capacity. **Distribution:** 4 miles of C. I. mains, 6 in. to 12 in.; 55 hydrants; 800 services, ½ in. to ½ in. lead pipe. **Pressure:** ordinary, 70 to 86 lbs.; fire, 110 lbs. **Consumption:** 400,000 gal. **Financial:** cost of supply plant, \$110,000; cost of distribution system, \$40,000; annual maintenance, \$4,371, (including interest); revenue, \$6,000. **Rates:** flat rate, \$6 and upward per dwelling; bath-room \$5. Officer in charge: D. McKeller, Superintendent.

**HUNTSVILLE**, Muskoka dist., (2,400). In operation since 1898; owned by municipality. **Supply:** pumped from lake Vernon, ½ mile distant, to reservoir; steam power used, 45 to 120 h.p.; boilers and pumps are in duplicate. **Reservoir:** 1 of 800,000 gal. capacity. **Distribution:** 5 miles of C. I. main, 1 in. to 10 in.; 38 hydrants; 450 services, ½ in. galv. iron pipe. **Pressure:** 65 to 98 lbs. **Consumption:** 210,000 gal. **Financial:** cost of supply plant, \$4,000; cost of distribution system, \$25,000; annual maintenance, \$1,685; revenue from consumers, \$3,225; from public uses, \$1,737. **Rates:** flat rate, \$6.50 per tap. Officer in charge: G. Ralston.

**INGERSOLL**, Oxford co., (3,600). In operation since 1891 as a private system, owned by municipality since 1913. **Supply:** by gravity from springs to well, 3 miles distant, thence pumped to stand-pipe and mains;

electric power used, with steam and water-power for emergencies, average, 40 h.p., maximum, 70 h.p. **Reservoir:** stand-pipe of 163,000 gal. capacity. **Distribution:** 15 miles of C. I. mains, 4 in. to 12 in.; 74 hydrants; 1,150 services,  $\frac{1}{2}$  in. to 2 in. galv. iron and lead pipes. **Pressure:** ordinary; 60 lbs.; fire, 100 lbs. **Consumption:** 750,000 gal., large portion being supplied to railways and industries. **Financial:** total cost of plant, \$130,000; annual maintenance, \$6,000; interest \$5,000; revenue from consumers, \$13,000; from public uses, \$3,000. **Rates:** flat and meter rates; flat rate, \$6 and upward per dwelling; bath-room, \$8; meter rate, 10c. to 25c. per 1,000 gal. Officer in charge: E. Cornfoot, Superintendent.

**IROQUOIS**, Dundas co., (900). In operation since 1898; owned by municipality. **Supply:** pumped from St. Lawrence river,  $\frac{1}{2}$  mile distant, directly into mains; water-power used, average, 50 h.p.; auxiliary steam engine. **Distribution:** 3 miles of C. I. mains, 2 in. to 6 in.; 22 hydrants; 186 services,  $\frac{1}{2}$  in. and  $\frac{3}{4}$  in. lead and galv. iron pipes. **Pressure:** ordinary, 50 lbs.; fire, 90 lbs. **Financial:** total cost of plant, \$40,000; annual maintenance, \$750; revenue, \$1,410. **Rates:** flat rate, \$6 per dwelling, bath-room, \$3.

**KENORA**, Kenora dist., (6,500). In operation since 1899; owned by municipality. **Supply:** pumped from lake of the Woods,  $1\frac{1}{2}$  miles distant, directly into mains; electric power used, average, 100 h.p., maximum, 250 h.p.; pumps in duplicate, with steam plant for emergency. **Purification:** hypochlorite of lime treatment. **Distribution:** 6 miles of C. I. mains, 4 in. to 12 in.; 55 hydrants; 1,100 services,  $\frac{1}{2}$  in. to 2 in. iron pipe. **Pressure:** ordinary, 75 lbs.; fire, 140 lbs. **Consumption:** 1,000,000 gal. **Financial:** total cost of plant, \$200,000; annual maintenance, \$10,311; interest, \$6,294; revenue, \$26,112. **Rates:** flat rate, from \$2.95 upward, per dwelling, according to size; bath-room, \$2. Officer in charge: G. C. Hay, Clerk.

**KINCARDINE**, Bruce co., (2,124). In operation since 1889; owned by municipality. **Supply:** pumped from lake Huron to stand-pipe; steam power used, 40 to 60 h.p.; boilers are in duplicate. **Filter:** gravel and sand filter used with satisfactory results. **Reservoir:** 1 stand-pipe 16 ft.  $\times$  100 ft., 125,000 gal.; and 2 reservoirs of 96,000 gal. capacity. **Distribution:** 3 miles of C. I. mains; 35 hydrants; 392 services. **Pressure:** ordinary, 50 to 80 lbs.; fire, 100 to 150 lbs. **Consumption:** 125,000 gal. **Financial:** total cost of plant, \$47,561; annual maintenance, \$2,200 (interest \$2,231); revenue from consumers, \$3,317; from public uses, \$2,431. **Rates:** flat rate, \$5 to \$6

## WATER-WORKS OF ONTARIO

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per dwelling; bath-room, \$6.50; meter rate, 10c. per 1,000 gal. Officer in charge: A. H. Ingram, Superintendent

**KINGSTON**, Frontenac co., (19,500). In operation since 1850; owned by municipality. Supply: pumped from lake Ontario,  $\frac{1}{2}$  mile distant, to mains and reservoir; steam power used, maximum, 150 h.p., average 125 h. p.; pumps are in duplicate. Reservoir: 1 stand-pipe 80 ft.  $\times$  40 ft., 626,000 gal.; situated 106 ft. above lake Ontario. Distribution: 33½ miles of C. I. mains, 3 in. to 18 in.; 266 hydrants; 4,093 services, lead and galv. iron pipes. Pressure: 50 to 80 lbs. Consumption 2,500,000 gal. Financial: cost of supply plant, \$55,000; cost of distribution system, \$275,000; annual maintenance, \$15,000; revenue, \$46,000. Rates: flat rate on assessment basis, \$3.75 upward; bath-room, \$3.77; meter rate, 9.6c. to 48c. per 1,000 gal. Officer in charge: C. C. Folger, General Manager.

**KINGSVILLE**, Essex co., (1,850). In operation since 1894; owned by municipality. Supply: pumped from lake Erie, 1½ miles distant, to elevated tank; steam power used; pumps are in duplicate. Reservoir: elevated tank, 45,000 gal. capacity. Distribution: 4 miles of mains, 2 in. to 10 in.; 35 hydrants; 418 services, galv. iron pipe. Pressure: 118 lbs. Consumption: 300,000 gal. Financial: cost of supply plant, \$7,000; cost of distribution system, \$20,000; annual maintenance, \$2,233; interest, \$827; revenue, \$2,814. Rates: flat rate, \$5 per dwelling; bath-room, \$3. Officer in charge: G. Butler.

**LEAMINGTON**, Essex co., (2,880). In operation since 1891; owned by municipality. Supply: by gravity with an air pressure auxiliary from artesian wells,  $\frac{1}{2}$  mile distant, to pump house, thence pumped directly into mains; steam power used, maximum, 75 h.p., average 45 h.p.; boilers and pumps are in duplicate. Distribution: 8 miles of C. I. and steel mains, 3½ in. to 10 in.; 57 hydrants; 630 services, lead and galv. iron pipes. Pressure: ordinary, 50 lbs.; fire, 110 lbs. Consumption: 175,000 gal. Financial: cost of supply plant, \$8,000; cost of distribution system, \$29,000; annual maintenance, \$3,500; revenue \$3,500. Rates: flat rate, \$5 for first tap; bath-room, \$2; meter rate, 10c. per 1,000 gal. Officer in charge: W. G. Gidley.

**LINDSAY**, Victoria co., (8,000). In operation since 1892; owned by municipality. Supply: pumped from Scugog river to stand-pipe and also directly into mains; electric power used, maximum, 110 h.p.; average, 85 h.p., steam pumping plant in reserve. Filter: 3 mechanical filters and ozonization chamber. Reservoir: stand-pipe, 110 ft.  $\times$  15 ft., 135,000 gal. Distribution: 14 miles of C. I. mains, 3 in. to

12 in.; 104 hydrants; 1,000 services,  $\frac{1}{2}$  in. to 4 in. galv. iron and C. I. pipes. **Pressure:** ordinary, 68 to 72 lbs.; fire, 95 to 120 lbs. **Consumption:** 600,000 gal. **Financial:** total cost of plant, \$128,000; annual maintenance, \$6,000; interest, \$3,238; revenue from consumers, \$14,000; from public uses, \$3,750. **Rates:** flat rate, 86 per dwelling; bath-room, \$6.50; meter rate, 9-6c. to 40c. per 1,000 gal. Officer in charge: D. Ray, Secretary.

**LISTOWEL**, Perth co., (2,600). In operation since 1903; owned by municipality. **Supply:** pumped from artesian wells, to stand-pipe; steam power used, average, 40 h.p., maximum, 125 h.p.; boilers and pumps are in duplicate. **Reservoir:** stand-pipe, 66,000 gal. capacity. **Distribution:** 5 $\frac{1}{2}$  miles of C. I. and galv. iron mains, 2 in. to 8 in.; 42 hydrants; 369 services,  $\frac{1}{2}$  in. to 1 in. galv. iron pipe. **Pressure:** ordinary, 55 lbs.; fire, 80 to 120 lbs. **Financial:** total cost of plant, \$47,000; annual maintenance, \$4,301; interest and debentures, \$2,212; revenue from consumers, \$5,383; from public uses, \$1,640. **Rates:** flat rate, \$5 and upward per dwelling; bath-room, \$5; meter rate 10c. to 30c. per 1,000 gal. Officer in charge: R. H. Staford, Superintendent.

**LONDON**, Middlesex co., (57,000). In operation since 1878; owned by municipality. **Supply:** pumped from springs, 5 miles distant, and from wells in city, to reservoirs; electric power used; steam and gas auxiliary pumping apparatus. **Reservoirs:** 1 of 5,000,000 gal. at springs, and 1 of 1,000,000 gal. in city. **Distribution:** 116 miles of C. I. mains,  $\frac{1}{2}$  in. to 20 in.; 831 hydrants; 14,893 services,  $\frac{1}{2}$  in. lead pipe. **Pressure:** 70 lbs., fire, 110 lbs. **Consumption:** 4,620,000 gal. **Financial:** total cost of plant, \$1,240,900; annual maintenance, \$73,864; revenue, \$123,612. **Rates:** meter rate of 8c. to 15c. per 1,000 gal. plus meter rental; flat rate \$5 and upward per dwelling; bath-room, \$7.50; 40 per cent discount on flat rates. Officer in charge: E. V. Buchanan, Manager.

**LUCKNOW**, Bruce co., For fire protection only; in operation since 1890; owned by municipality. **Supply:** pumped from a branch of Nine-mile river directly into mains; steam power used. **Distribution:** 17 hydrants. **Pressure:** 80 lbs. **Financial:** annual maintenance, \$1,654. Officer in charge: J. S. Hunter.

**MARKDALE**, Grey co., (1,000). In operation since 1910; owned by municipality. **Supply:** by gravity, from spring creeks,  $\frac{1}{2}$  mile distant, to pumping station, thence pumped to stand-pipe; water-power used. **Filter:** gravel filter-bed. **Reservoir:** 1 stand-pipe 70 ft. high, 67,000 gal. capacity. **Distribution:** 5 $\frac{1}{2}$  miles C. I. mains,  $\frac{1}{2}$  in. to 8 in.; 23 hydrants;

## WATER-WORKS OF ONTARIO

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114 services,  $\frac{1}{2}$  in. galv. iron pipe. **Consumption:** 50,000 gal. **Financial:** total cost of plant, \$30,000; annual maintenance, \$330; revenue, \$300. **Rates:** flat rate, \$3 and upward per family; bath-room, \$1 and upward. Officer in charge: R. W. Ennis, Chairman, Water-works Commission.

**MARKHAM**, York co., (1,500). In operation since 1890; owned by municipality. **Supply:** for fire protection only; pumped from reservoir, fed from springs 100 yds. distant, directly into mains; steam power used, maximum, 40 h.p., average, 5 h.p. **Reservoir:** 1 of 37,000 gal. capacity. **Distribution:** 1 mile C. I. pipe, 4 in. to 8 in.; 15 hydrants. **Pressure:** 150 lbs. **Financial:** cost of plant, \$10,000. Officer in charge: W. Morrison, Engineer.

New system now being installed at an additional outlay of \$20,000 will be supplied by gravity from springs,  $\frac{1}{2}$  mile distant, and pumped to 60,000 gal., elevated tank or to mains; it will comprise an addition of 2½ miles of 4 in. to 8 in. mains and 19 new hydrants and will also supply water for domestic use.

**MASSEY**, Algoma dist., (917). In operation since 1908; owned by municipality. **Supply:** by gravity from Sable river, 1 mile distant. **Distribution:** iron mains; 12 hydrants; 106 services, galv. iron pipe. **Financial:** total cost of plant, \$23,882; annual maintenance, \$300; interest, \$1,161; revenue, \$1,500. **Rates:** flat rate.

**MEAFORD**, Grey co., (3,200). In operation since 1895; owned by municipality. **Supply:** pumped from Georgian bay,  $\frac{1}{2}$  mile distant, to stand-pipe and directly into mains, steam power used, 50 h.p.; pumps and boilers are in duplicate. **Reservoir:** stand-pipe of 80,000 gal. capacity. **Purification:** sand and gravel filter used. **Distribution:** 6 miles of C. I. mains, 4 in. to 8 in.; 45 hydrants; 742 services, galv. iron pipe. **Pressure:** ordinary, 65 lbs.; fire, 130 lbs. **Consumption:** 250,000 gal. **Financial:** cost of supply plant, \$5,000; cost of distribution system, \$34,000; annual maintenance, \$2,324; interest, \$1,202; revenue from consumers, \$5,165; from public uses, \$1,646. **Rates:** flat rate, \$4 per dwelling; bath-room, \$3.50; meter rate, 9½c. to 20c. per 1,000 gal. Officer in charge: W. H. Johnson, Superintendent.

**MERRITTON**, Lincoln co., (1,800). In operation since 1889; owned by municipality. **Supply:** by gravity from lake Erie (Welland canal) 3 miles distant. **Reservoir:** 1 of 5,000,000 gal. capacity. **Distribution:** 8 miles C. I. mains, 4 in. to 14 in.; 51 hydrants; 400 services,  $\frac{1}{2}$  in. and  $\frac{1}{4}$  in. iron pipe. **Pressure:** 30 lbs. to 103 lbs. **Financial:** cost of supply

plant, \$70,000; cost of distribution system, \$20,000; annual maintenance, \$1,472; interest, \$4,600; revenue from consumers, \$6,282; from public uses, \$1,000. **Rates:** flat rate, \$5 per dwelling, bath-room, \$4. Officer in charge: R. Clark, Superintendent.

**MIDLAND**, Simcoe co., (6,253). In operation since 1901, owned by municipality. **Supply:** pumped from springs, 1½ miles distant, to stand-pipe and mains; steam and electric power used, average 3 h.p.; pumps are in duplicate. **Reservoirs:** 2 reservoirs, 50 ft. × 100 ft. and 75 ft. × 150 ft. respectively. **Purification:** charcoal, gravel and sand filter. **Distribution:** 6½ miles of C. I. mains, 4 in. to 10 in.; 90 hydrants; 1,100 services, ½ in. iron pipe. **Pressure:** ordinary, 80 lbs.; fire, 104 lbs. **Consumption:** 225,000 gal. **Financial:** total cost of plant, \$105,911; annual maintenance, \$4,766; interest, \$2,893; revenue from consumers, \$9,000; from public uses, \$1,700. **Rates:** meter rate, 11c. to 33c. per 1,000 gal.; flat rate, \$6 for first tap; bath-room, \$6. Officer in charge: S. J. Millikin, Superintendent.

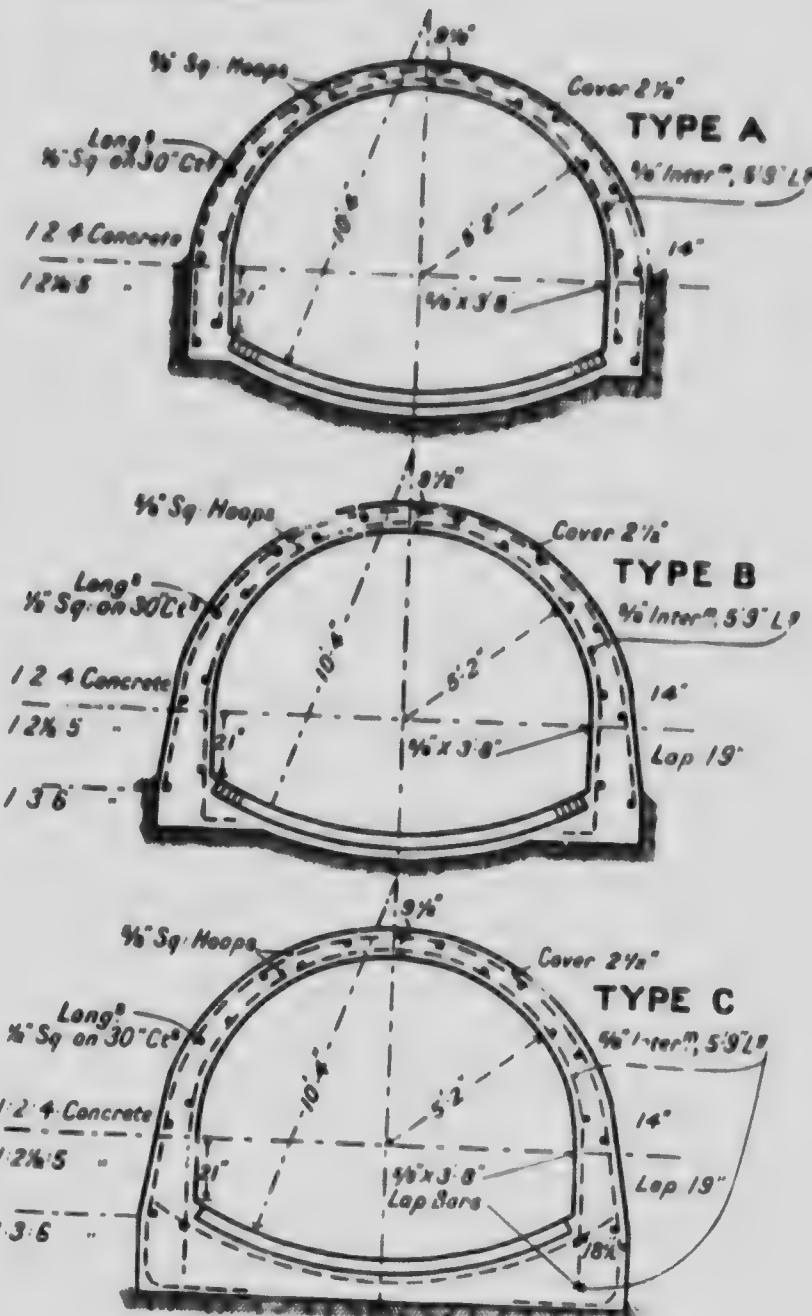
**MILLBROOK**, Durham co. Part of population is supplied through a number of small private water systems. The water is supplied from flowing wells.

**MILDWELL**, Bruce co., (600). In operation since 1908; owned by Herrgott Bros. **Supply:** pumped from artesian wells, ½ mile distant, to tank and mains; hydraulic pressure used. **Reservoir:** 1 of 4,500 gal. capacity. **Distribution:** ½ mile galv. iron mains, 1½ in.; 135 services, ½ in. galv. iron pipe. **Pressure:** 40 lbs. **Financial:** total cost of plant, \$3,900; annual maintenance, \$50; annual revenue, \$750. **Rates:** flat rate, \$6 per tap.

**MILTON**, Halton co., (1,000). In operation since 1887; owned by municipality. **Supply:** by gravity from springs, 1½ mile to 5½ miles distant. **Reservoir:** 1 of 500,000 gal. capacity. **Distribution:** 4½ miles of C. I. mains, 4 in. to 8 in.; 23 hydrants; 265 services, ½ in. iron pipe. **Pressure:** 85 to 94 lbs. **Consumption:** 50,000 gal. **Financial:** total cost of plant, \$40,000; annual maintenance, \$250; revenue, \$1,500. **Rates:** flat rate, \$2.50 and upward per dwelling, bath-room; \$4; meter rate, 10c. per 1,000 gal. Officer in charge: W. A. Chapman, Inspector.

**MITCHELL**, Perth co., (1,800). Fire protection system in operation since 1874, domestic system since 1911; owned by municipality. **Supply:** pumped from artesian wells, 1,000 feet distant, to mains; electric power used; pumping apparatus in duplicate; auxiliary pumping from

COMMISSION OF CONSERVATION



**TYPICAL SECTIONS**  
**BALACLAVA ST. TRUNK SEWER**  
**VANCOUVER, B.C.**  
Scale: 5 feet - 1 inch



Thames river for fire protection. **Distribution:** 2½ miles of C. I. mains, 4 in. and 6 in.; 22 hydrants, 140 services. **Pressure:** ordinary, 60 lbs.; fire, 140 lbs. **Financial:** cost of supply plant, \$1,100; cost of distribution system, \$11,642; annual maintenance, \$1,500; revenue from consumers, \$740; from public uses, \$1,293. **Rates:** flat rate, \$5 per dwelling. Officer in charge: R. Ord, Superintendent.

**MORRISBURG**, Dundas co., (1,500). In operation since 1886, owned by municipality. **Supply:** pumped from St. Lawrence river, ½ mile distant, directly into mains, water-power used with steam auxiliary, 35 h.p. **Distribution:** 5 miles of C. I. mains, 4 in. to 8 in.; 36 hydrants, 330 services, iron and lead pipes. **Pressure:** ordinary, 60 lbs.; fire, 90 lbs. **Consumption:** 300,000 gal. **Financial:** total cost of plant, \$31,834; annual maintenance, including debentures, \$3,328; revenue, \$4,244. **Rates:** flat rate, \$5 per dwelling; bath-room, \$5. Officer in charge: C. Casselman, Superintendent.

**MOUNT FOREST**, Wellington co., (2,200). In operation since 1898; owned by municipality. **Supply:** pumped from spring wells to stand-pipe; steam power used; maximum, 225 h.p., average 95 h.p.; boilers in duplicate. **Reservoir:** stand-pipe, 55,000 gal. capacity. **Distribution:** 4 miles C. I. mains, 4 in. to 12 in.; 44 hydrants; 450 services, galv. iron pipe. **Pressure:** ordinary, 55 lbs.; fire, 90 to 100 lbs. **Consumption:** 100,000 gal. **Financial:** total cost of plant, \$34,000; annual maintenance, \$3,450; revenue from consumers, \$2,900; from public uses, \$1,300. **Rates:** flat rate, \$5 per dwelling. Officer in charge: John Hunt.

**NAPANEE**, Lennox and Addington co., (2,850). In operation since 1890; owned by Napanee Water-works Co. **Supply:** pumped from Napanee river, 500 yds. distant, to stand-pipe; water-power used, average 30 h.p., maximum, 125 h. p.; emergency steam plant. **Reservoir:** stand-pipe, 125,000 gal. capacity. **Distribution:** 3½ miles C. I. mains, 2 in. to 10 in.; 36 hydrants; 300 services, galv. iron pipe. **Pressure:** ordinary, 40 lbs.; fire, 100 lbs. **Consumption:** 300,000 gal. **Financial:** annual maintenance, \$1,500; interest, \$2,400. **Rates:** flat rate, \$5.75 and upward per dwelling; bath-room, \$9.20; meter rate, 11½c. to 57½c. per 1,000 gal.

**NEW LISKEARD**, Nipissing dist., (4,000). In operation since 1907; owned by municipality. **Supply:** by gravity from springs, 2½ miles distant, to pumping station, thence pumped to stand-pipe; electric power used; motors and pumps in duplicate. **Reservoir:** stand-pipe,

140,000 gal. capacity. **Distribution:** 4½ miles C. I. mains, 4 in. to 10 in.; 300 services, ½ in. galv. iron pipe. **Pressure:** 85 lbs. **Consumption:** 140,000 gal. **Financial:** total cost of plant, \$60,000; annual maintenance, \$2,720; revenue, \$2,900. **Rates:** flat rate, \$6 and upward per dwelling; bathroom, \$4. Officer in charge: J. I. Dixon, Secretary-treasurer.

**NEWMARKET**, York co., (3,757). In operation since 1887; owned by municipality. **Supply:** pumped from artesian wells, in town, to reservoir and also directly into mains; steam power used, average, 130 h.p.; pumping apparatus in duplicate. **Reservoir:** catch basin at wells, 175,000 gal. capacity. **Distribution:** 10 miles C. I. and galv. iron mains, ½ in. to 10 in.; 47 hydrants; 650 services, ½ in. to 1 in. galv. iron pipe. **Pressure:** ordinary, 45 lbs.; fire, 100 to 110 lbs. **Consumption:** 160,000 gal. **Financial:** total cost of plant, \$30,000; annual maintenance, \$2,500; interest, \$300; revenue from consumers, \$4,000; from public uses, \$50. **Rates:** meter rate, 20c. per 1,000 gal. and service charge of \$3; flat rate, \$6 for first tap. Officer in charge: William O. Halleran, Engineer.

**NIAGARA**, Lincoln co., (1,723). In operation since 1891; owned by municipality. **Supply:** from Niagara river ½ mile distant, to tank; electric power used, with steam auxiliary; maximum, 80 h.p., average, 50 h.p.; pumping apparatus in duplicate. **Reservoir:** tank, 50,000 gal. **Distribution:** 5½ miles C. I. and galv. iron mains, 2 in. to 12 in.; 45 hydrants; 275 services, ½ in. and 1 in. pipe. **Pressure:** ordinary, 40 lbs.; fire, 110 to 130 lbs. **Consumption:** 300,000 gal. **Financial:** total cost of plant, \$40,000; annual maintenance, \$2,700; revenue, \$2,870. **Rates:** flat rate, \$7.20 per dwelling; bath-room, \$7.20; meter rate, 12c. to 35c. per 1,000 gal. less 20 per cent. Officer in charge: James Brown.

**NIAGARA FALLS**, Welland co., (11,700). In operation since 1884; owned by municipality. **Supply:** pumped from Niagara river, 1½ mile distant, directly into mains; hydraulic and electric power used, 250 h.p. to 385 h.p.; pumps in duplicate. **Reservoir:** 1 of 4,000,000 gal. capacity. **Distribution:** 30 miles C. I. and wooden mains, 4 in. to 12 in.; 179 hydrants; 2,660 services, ½ in. galv. iron pipe. **Pressure:** ordinary, 110 to 120 lbs.; fire 140 to 160 lbs. **Consumption:** 3,000,000 gal. **Financial:** total cost of plant, \$239,000; annual maintenance, \$9,204; revenue, \$26,500. **Rates:** \$4 per dwelling; bath-room, \$4; meter rate, 6c. to 12c. per 1,000 gal. Officer in charge: F. J. Anderson, City Engineer.

**NORTH BAY**, Nipissing dist., (8,782). In operation since 1891; owned by municipality. **Supply**: pumped from Trout lake, 3 miles distant, to reservoir; electric power used, 200 h.p.; there is a steam auxiliary pumping plant. **Reservoir**: 1 of 1,378,000 gal. capacity. **Distribution**: 19 miles of C. I. and wooden mains, 4 in. to 14 in.; 95 hydrants; 1,972 services,  $\frac{1}{2}$  to 1 in. galv. iron pipe. **Pressure**: 90 lbs. **Financial**: total cost of plant, \$201,032; annual maintenance, \$14,502; interest, \$3,687; revenue, \$28,500. **Rates**: meter rate, 6c. to 8c. per 1,000 gal.; flat rate, \$7 and upward per dwelling. Officer in charge: E. L. Banner, Chairman Fire and Water Committee.

**NORWICH**, Oxford co., (1,250). Privately owned system in operation since 1906, municipal system since 1914. **Supply**: pumped from artesian well in village to elevated tank or mains; electric power used, average, 3 h.p., maximum, 50 h.p. **Reservoirs**: 2 of 62,000 gal. and 30,000 gal. respectively and elevated tank of 35,000 gal. capacity. **Distribution**: 3½ miles of C. I. mains, 4 in. to 8 in.; 36 hydrants; 175 services. **Pressure**: fire, 125 lbs. **Financial**: cost of supply plant, \$8,500; cost of distribution system, \$16,500. **Rates**: flat rate, \$6 for first tap; bath-room, \$5. Officer in charge: W. Fairley, Clerk.

A privately owned system supplied by steam pumping from artesian wells has  $\frac{1}{2}$  mile of mains and supplies a small portion of the population.

**OAKVILLE**, Halton co., (2,600). In operation since 1909; owned by municipality. **Supply**: pumped from lake Ontario, 1 mile distant, through sedimentation basins to stand-pipe, or directly into mains; electric power used, maximum, 200 h.p., average, 90 h.p. **Purification**: water treated with hypochlorite of lime. **Reservoirs**: sedimentation basin with a capacity of 3,600,000 gal., 1 stand-pipe of 100,000 gal. capacity. **Distribution**: 7½ miles of C.I. mains, 4 in. to 8 in.; 85 hydrants; 640 services,  $\frac{1}{2}$  in. galv. iron pipe. **Pressure**: ordinary, 40 lbs.; fire, 140 lbs. **Consumption**: 300,000 gal. **Financial**: cost of supply plant, \$19,000; cost of distribution system, \$62,000; annual maintenance \$5,000, exclusive of interest; revenue from consumers, \$6,500; from public uses, \$3,800. **Rates**: flat rate, \$3 for first tap; bath-room, \$8; (minimum installation, \$5 per year). Officer in charge: R. S. Wilson, Superintendent.

**ORANGEVILLE**, Dufferin co., (2,500). In operation since 1895; owned by municipality. **Supply**: by gravity from springs, 1½ miles distant; steam and electric pumps for fire protection. **Reservoirs**: 2 of 60,000 and 30,000 gal. capacity. **Distribution**: 9 miles of C. I. and galv. iron mains, 1½ in. to 10 in.; 59 hydrants; 560 services, galv. iron

and lead pipes. **Pressure:** ordinary 20 lbs. to 60 lbs.; fire, 85 lbs. to 125 lbs. **Financial:** cost of supply plant, \$50,000; cost of distribution system, \$25,000; annual maintenance, \$2,500; revenue, \$3,500. **Rates:** flat rates, \$5 and upward per dwelling; bath-room, \$6. Officer in charge: Chas. King, Superintendent.

**ORILLIA**, Simcoe co., (7,360). In operation since 1880; owned by municipality. **Supply:** pumped from lake Couchiching and from Fitton springs, 1 mile distant; electric power used, 100 h.p.; there is a steam auxiliary plant. **Purification:** mechanical filters being installed. **Distribution:** 14 miles of C. I. and W. I. mains,  $\frac{1}{2}$  in. to 10 in.; 95 hydrants; 1,273 services. **Pressure:** ordinary 30 to 100 lbs.; fire, up to 140 lbs. **Consumption:** 600,000 gal. **Financial:** total cos. of plant, \$202,515; annual maintenance, \$7,500; interest, \$7,100; revenue from consumers, \$11,464, from public uses, \$3,146. **Rates:** flat rate, \$7.50 and upward per dwelling; bath-room, \$4.50. Officer in charge: W. K. C. Newwood, Engineer.

**OSHAWA**, Ontario co., (8,200). In operation since 1905; owned by municipality. **Supply:** pumped from lake Ontario, 3 miles distant, to stand-pipe and mains; electric power used, 100 h.p.; auxiliary steam pumping plant for emergency. **Reservoir:** 1 of 200,000 gal. capacity. **Distribution:** 18 miles of C. I. and galv. iron mains,  $1\frac{1}{2}$  in. to 12 in.; 90 hydrants; 1,483 services, lead and galv. iron pipes. **Pressure:** ordinary, 45 lbs.; fire, 90 to 120 lbs. **Consumption:** 490,000 gal. **Financial:** total cost of plant, \$26,245; annual maintenance, including interest, \$9,598; revenue from consumers, \$14,168; from public uses, \$2,500. **Rates:** flat rate, \$6 for one tap; bath-room, \$1; meter rate, 12c. to 16c. per 1,000 gal. Officer in charge: F. Chappell, Town Engineer.

**OTTAWA**, Carleton co., (101,795). In operation since 1874; owned by municipality. **Supply:** pumped from basin in Ottawa river to main pumping station,  $1\frac{1}{2}$  miles distant, and thence directly into mains; water-power used at main pumping station (2,000 h.p.); electric power for first stage pumping (150 h.p.) and booster pumps for business section (350 h.p.); 100 h.p. steam plant supplying Hintonburg. **Purification:** water treated with hypochlorite of lime at basin. **Distribution:**  $169\frac{1}{2}$  miles of C. I. mains, 3 in. to 24 in.; 1,377 hydrants; 23,500 services,  $\frac{1}{2}$  in. to 1 in. lead pipe and up to 6 in. iron. **Pressure:** ordinary, 85 lbs.; in booster area, 100 to 110 lbs. **Consumption:** 17,683,200 gal. **Financial:** total cost of plant, \$3,411,643; annual maintenance (exclusive of interest), \$155,000; revenue, \$435,000.

## WATER-WORKS OF ONTARIO

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**Rates:** flat rate, on assessment basis, from 1/4 of 1 per cent on large values to 1 per cent on small ones; meter rate, 6c. to 8c. per 1,000 gal. Officer in charge: F. C. Askwith, Acting City Engineer.

**OWEN SOUND**, Grey co., (12,592). In operation since 1880; owned by municipality. **Supply:** by gravity from Sydenham river, 3 miles distant, and springs, 2½ miles distant. **Filter:** slow sand filter used on supply from river. **Reservoirs:** 2 of 600,000 gal. and 5,000,000 gal. capacity, respectively. **Distribution:** 23 miles of C. I. mains, 4 in. to 18 in.; 160 hydrants; 3,250 services, lead pipe. **Pressure:** ordinary, 70 lbs.; fire, 96 lbs. **Consumption:** 1,000,000 gal. **Financial:** total cost of plant, \$286,884; annual maintenance, \$6,907; interest, \$11,335; revenue from consumers, \$19,011; revenue from public uses, \$5,500. **Rates:** flat rate, \$3.33 per family; bath-room, \$3.33; meter rate, 13c. per 1,000 gal. Officer in charge: C. J. Pratt, Inspector.

**PAISLEY**, Bruce co. Used for fire protection and watering only. In operation since 1888; owned by municipality. **Supply:** pumped from Saugeen river, ½ mile distant, directly into mains; steam power used, 45 h.p. **Distribution:** ½ mile of 6 in. C. I. mains; 6 hydrants. **Pressure:** ordinary, 25 lbs.; fire 99 lbs. **Financial:** total cost of plant, \$18,000. Officer in charge: M. Leitch, Superintendent.

**PALMERSTON**, Wellington co., (2,000). In operation since 1908; owned by municipality. **Supply:** pumped from artesian wells by compressed air to reservoir, thence by steam power to stand-pipe and mains; 20 h.p. used; boilers in duplicate. **Reservoir:** 1 of 100,000 gal. capacity; stand-pipe, 100 feet high and of 200,000 gal. capacity. **Distribution:** 4 miles of C. I. mains, 6 in. to 10 in.; 49 hydrants; 265 services, ½ in. galv. iron pipe. **Pressure:** ordinary, 38 lbs.; fire, 100 to 125 lbs. **Consumption:** 130,000 gal. **Financial:** cost of supply plant, \$20,000; cost of distribution system, \$25,000; annual revenue from consumers, \$5,700; revenue from public uses, \$1,200. **Rates:** flat rate, \$5 for first tap; bath-room, \$5. Officer in charge: W. J. Hancy, Superintendent.

**PARIS**, Brant co., (3,050). In operation since 1882; owned by municipality. **Supply:** pumped from springs, 1½ miles distant, to reservoir; electric power used, 18½ h.p.; pumps are in duplicate with steam auxiliary. **Reservoir:** 1 of 1,200,000 gal. capacity. **Distribution:** 9 miles C. I. mains, 4 in. to 10 in.; 56 hydrants; 1,032 services, lead and galv. iron pipes. **Pressure:** ordinary, 80 lbs.; fire, 80 to 115 lbs. **Consumption:** 325,000 gal. **Financial:** cost of supply plant, \$9,000; cost of distribution system, \$70,000; annual maintenance, \$5,103; interest, \$1,854;

revenue from consumers, \$7,762; from public uses, \$1,000. **Rates:** flat rate, \$5 and upward per dwelling; bath-room, \$6.00. Officer in charge: D. R. Brockbank, Superintendent.

**PARKHILL**, Middlesex co., (1,300). In operation since 1913; owned by municipality. **Supply:** pumped from well; 15 h.p. oil engine used. **Reservoir:** stand-pipe. **Distribution:** 4 miles of mains, 4 in. to 8 in.; 40 hydrants.

**PARRY SOUND**, Parry Sound dist., (4,000). In operation since 1892; owned by municipality. **Supply:** pumped from Georgian bay,  $\frac{1}{2}$  mile distant, to tank; steam and electric power used, average 45 h.p.; pumps are in duplicate. **Reservoir:** tank of 25,000 gal. capacity. **Distribution:**  $6\frac{1}{2}$  miles of C. I. mains, 3 in. to 8 in.; 65 hydrants; 675 services,  $\frac{1}{2}$  in. to 1 in. galv. iron pipe. **Pressure:** ordinary, 80 lbs.; fire, 120 lbs. **Consumption:** 190,000 gal. **Financial:** cost of supply plant, \$9,000; cost of distribution system, \$44,000; annual maintenance, \$2,200; revenue from consumers, \$5,400; from public uses, \$300. **Rates:** meter rate, 15c. to 35c. per 1,000 gal.; flat rate, \$3.50 and upward per dwelling. Officer in charge: G. Murray, Engineer.

**PEMBROKE**, Renfrew co., (5,000). In operation since 1893; owned by municipality. **Supply:** pumped from Ottawa river (Allumette lake)  $2\frac{1}{2}$  miles distant, to stand-pipe, and directly into mains; electric power used with steam auxiliary; maximum, 200 h.p., average, 100 h.p. **Reservoir:** 1 stand-pipe, 171,000 gal. capacity. **Distribution:** 13 miles of steel, C. I. and W. I. mains; 117 hydrants; 1,200 services,  $\frac{1}{2}$  in. to  $1\frac{1}{2}$  in. lead and galv. iron pipe. **Pressure:** ordinary, 73 lbs.; fire, 125 lbs. **Consumption:** 750,000 gal. **Financial:** total cost of plant, \$200,000; annual maintenance, \$6,000; interest and sinking fund, \$11,000; revenue from consumers, \$12,000; from public uses, \$3,200. **Rates:** \$6 per dwelling of 5 rooms; bath-room, \$6; meter rate, 10c. to 30c. per 1,000 gal. Officer in charge: W. J. Moore, Town Engineer.

**PENETANGUISHENE**, Simcoe co., (3,967). In operation since 1890; owned by municipality. **Supply:** pumped from springs and wells,  $\frac{1}{2}$  mile distant, to mains and stand-pipe; steam and electric power used, average, 85. h. p., maximum, 170 h.p.; pumping apparatus in duplicate. **Reservoirs:** 1 of 350,000 gal. capacity, and stand-pipe of 300,000 gal. capacity. **Distribution:** 12 miles of C. I. mains; 4 in. to 10 in.; 60 hydrants; 525 services,  $\frac{1}{2}$  in. to 4 in. **Pressure:** ordinary, 89 lbs.; fire, 110 lbs. **Consumption:** 350,000 gal. **Financial:** cost of supply plant, \$10,300; cost of distribution system, \$50,872; annual

**maintenance, \$4,250; interest, \$435; revenue from consumers, \$6,000; from public uses, \$2,950.** **Rates:** meter rate '0c. to 30c. per 1,000 gal.; flat rate, \$5 and upward per dwelling; bath-room, 50c. per inmate. Officer in charge: J. Irwin, Superintendent.

**PERTH**, Lanark co., (3,500). In operation since 1897; owned by Canadian Electric and Water-Power Co. **Supply:** pumped from Tay river,  $\frac{1}{2}$  mile distant, directly into mains; steam and electric power used, average, 50 h.p., maximum, 200 h.p.; pumping apparatus in duplicate. **Purification:** slow sand filter. **Distribution:** 12 miles of C. I. mains, 4 in. to 10 in.; 43 hydrants, 425 services,  $\frac{1}{2}$  in. and  $\frac{3}{4}$  in. galv. iron and lead pipes. **Pressure:** ordinary, 45 lbs.; fire, 150 lbs. **Consumption:** 500,000 gal. **Financial:** cost of supply plant, \$40,000; cost of distribution system, \$75,000; annual maintenance, \$5,650; interest, \$4,875; revenue from consumers, \$5,839; from public uses, \$1,050. **Rates:** flat rate on assessment basis, \$5 and upward per dwelling; meter rate, 8c. per 1,000 gal. Officer in charge: R. J. Smith, Superintendent.

**PETERBOROUGH**, Pe. <sup>th</sup> co., (20,000). In operation since 1882; owned by municipality. **Supply:** pumped from Otonabee river,  $2\frac{1}{2}$  miles distant, directly into mains; water-power used, 450 to 500 h.p. **Distribution:** 40 miles of C. I. mains, 3 in. to 20 in.; 267 hydrants; 3,721 services, lead and galv. iron pipe, C. I. for large services. **Pressure:** ordinary, 75 lbs.; fire, 130 lbs. **Consumption:** 3,000,000 gal. **Financial:** total cost of plant, \$492,000; annual maintenance, \$18,527; revenue, \$50,265. **Rates:** flat rate, \$4 and upward per dwelling, according to number of rooms; bath-room, \$5; meter rate,  $13\frac{1}{2}$  to 40c. per 1,000 gal. Officer in charge: R. L. Dobbin, Superintendent.

**PETROLIA**, Lambton co., (4,100). In operation since 1896; owned by municipality. **Supply:** pumped from lake Huron, 13 miles distant, to stand-pipe; steam power and 60 to 100 h.p.; boilers, engines and pumps in duplicate. **Distribution:**  $13\frac{1}{2}$  miles of C. I. mains, 2 in. to 12 in.; 100 hydrants; 1,600 services, lead pipe. **Pressure:** 25 to 35 lbs. **Consumption:** 850,500 gal. **Financial:** cost of supply plant, \$131,760; cost of distribution system, \$59,500; annual maintenance, \$5,600; interest, \$9,978; revenue from consumers, \$12,200; from public uses, \$4,000. **Rates:** flat rate, \$7 and upward per dwelling, based on number of rooms; bath-room, \$6. Officer in charge: J. McHattie, Secretary of Water Board.

**PICTON**, Prince Edward co., (4,000). In operation since 1889; owned by municipality. **Supply**: pumped from bay of Quinte,  $\frac{1}{2}$  mile distant, to reservoir; steam power used, average, 60 h.p.; pumps in duplicate. **Reservoir**: 1 of 300,000 gal. capacity. **Distribution**: 5 miles of C. I. mains, 2 in. to 8 in.; 40 hydrants; 275 services, galv. iron pipe. **Pressure**: ordinary, 75 lbs.; fire, 90 lbs. **Consumption**: 350,000 gal. **Financial**: cost of supply plant, \$10,000; cost of distribution system, \$20,000; annual maintenance, \$3,000; revenue, \$3,000. **Rates**: flat rate, \$9 per dwelling; meter rate, 12.8c. to 19.2c. per 1,000 gal. Officer in charge: S. O. Crandell.

**PORT ARTHUR**, Thunder Bay dist., (16,500). In operation since 1903; owned by municipality. **Supply**: pumped from lake Superior, 3 miles distant, to stand-pipe and mains; water and electric power used, average, 450 h.p., maximum, 525 h.p. **Reservoir**: stand-pipe of 200,000 gal. capacity. **Distribution**: 37 $\frac{1}{2}$  miles of C. I. and wooden mains, 4 in. to 12 in.; 294 hydrants; 2,858 services, lead pipe. **Pressure**: ordinary, 90 lbs.; fire, 130 lbs. **Consumption**: 2,174,535 gal. **Financial**: total cost of plant, \$634,756; annual maintenance, \$23,834; interest, \$96,542; revenue from consumers, \$41,225; from public uses, \$10,240. **Rates**: flat rate, \$9 and upward per dwelling; meter rate, 11.2c. to 16c. per 1,000 gal. Officer in charge: L. M. Jones, City Engineer.

**PORT CARLING**, Muskoka dis., (135). In operation since 1902; private plant operated co-operatively by consumers. **Supply**: pumped from Indian river, 1,200 ft. distant, to reservoirs; wind power and gasolene engine used, 3 h.p. **Reservoirs**: 2, of 5,000 gal. capacity each. **Distribution**: 1 mile of galv. iron mains, 1 in. to 2 $\frac{1}{2}$  in.; 22 services,  $\frac{1}{2}$  in. galv. iron pipe. **Financial**: cost of supply plant, \$800; cost of distribution system, \$475; annual maintenance, \$100; revenue, \$125. **Rates**: flat rate, \$12 per dwelling. Officer in charge: W. F. Hanna, Secretary.

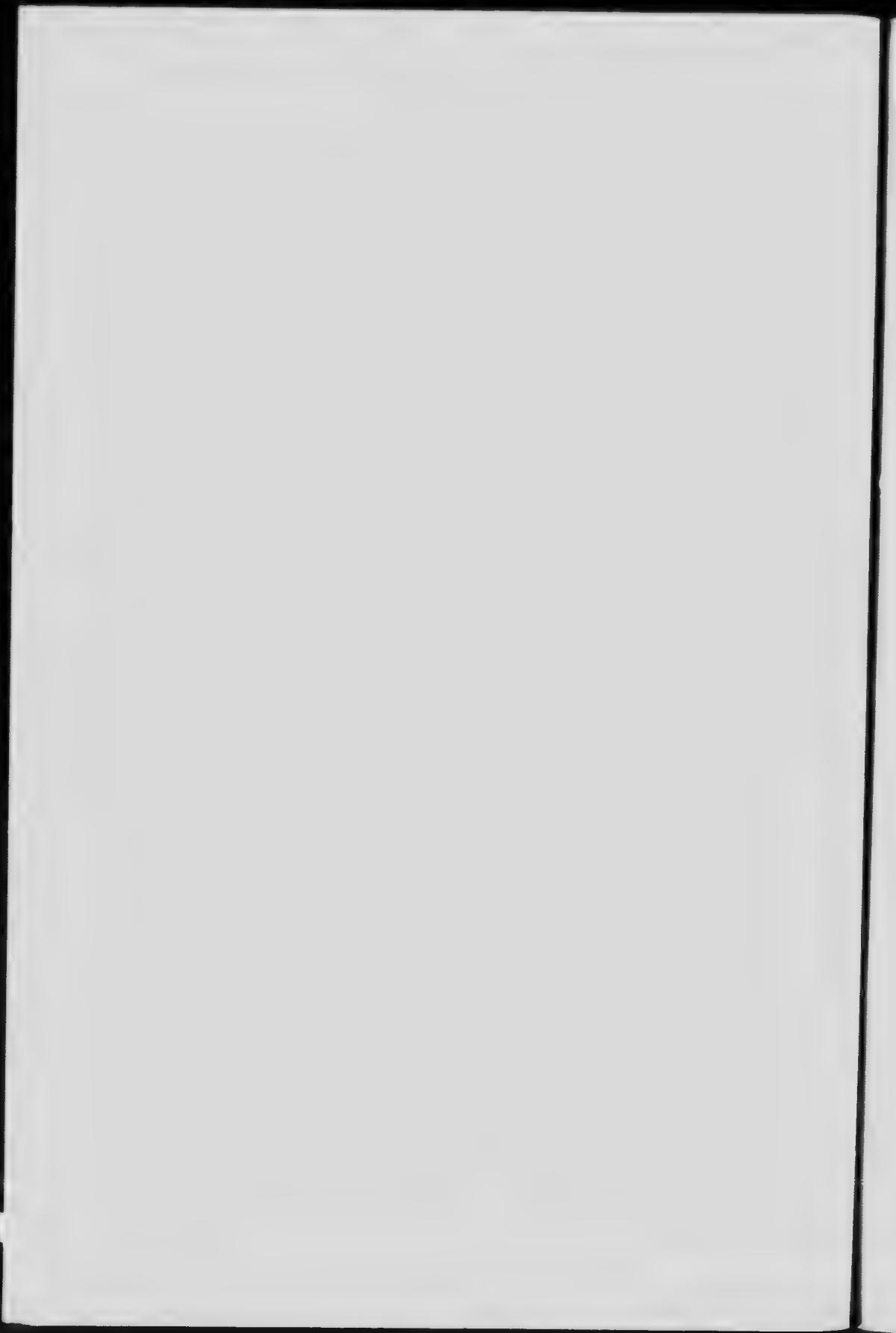
**PORT COLBORNE**, Welland co., (2,206). In operation since 1898; owned by municipality. **Supply**: pumped from lake Erie,  $\frac{1}{2}$  mile distant, to stand-pipe; gas and electric power used; pumping apparatus in duplicate. **Reservoir**: 1 stand-pipe, 12 ft.  $\times$  80 ft., 56,500 gal. **Distribution**: 6 miles of 6 in. C. I. mains; 62 hydrants; 500 services,  $\frac{1}{2}$  in. and  $\frac{3}{4}$  in. pipe. **Pressure**: ordinary, 40 lbs.; fire, 80 lbs. **Consumption**: 75,000 gal. **Financial**: total cost of plant, \$30,000; annual maintenance, \$1,200; revenue, \$3,000. **Rates**: flat rate, \$6 per dwelling. Officer in charge: D. Alair, Clerk.



St. Catharines Water-works - 91 m. Intake



St. Catharines Water-works - Spillway for Surplus Water



## WATER-WORKS OF ONTARIO

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**PORT ELGIN**, Bruce co., (1,300). In operation since 1907; owned by municipality. **Supply**: pumped from springs, 1½ miles distant, to stand-pipe; steam power used, average, 75 h.p.; boilers in duplicate. **Reservoir**: natural reservoir, 400,000 gal. capacity. **Distribution**: 3½ miles of C. I. and galv. iron mains, 2 in., 6 in. and 8 in.; 33 hydrants; 200 services, ½ in. galv. iron pipe. **Pressure**: 34 to 96 lbs. **Financial**: total cost of plant, \$42,000; annual maintenance, \$900; revenue, \$775. **Rates**: flat rate, \$6 per dwelling; bath-room, \$3. Officer in charge: George Fisher, Engineer.

**PORT HOPE**, Durham co., (5,000). In operation since 1896, owned by municipality. **Supply**: pumped from lake Ontario, ½ miles distant, to stand-pipe; steam power used, maximum, 100 h.p., average, 75 h.p.; pumps and boilers in duplicate. **Filter**: slow sand filter. **Reservoirs**: 3 filtering basins of 145,000 gal., 270,000 gal., and 800,000 gal. capacity. **Distribution**: 11½ miles of C. I. mains, 4 in. to 12 in.; 95 hydrants; 730 services, ½ in. to 2 in. iron pipe. **Pressure**: ordinary, 90 lbs.; fire, up to 130 lbs. **Consumption**: 180,000 gal. **Financial**: total cost of plant, exclusive of filter \$120,000; annual maintenance, \$9,346; revenue, \$10,510. **Rates**: flat rate, \$5 and \$6 per tap; meter rate, 10c. to 25c. per, 1,000 gal., with a minimum of \$9 per year. Officer in charge: R. Gray, Superintendent.

**PORT PERRY**, Ontario co., (1,200). In operation since 1903; owned by municipality; water not used for drinking. **Supply**: pumped from Scugog lake, ½ mile distant, directly into mains and to stand-pipe; steam power used, 35 h.p. **Reservoir**: stand-pipe of 65,000 gal. capacity. **Distribution**: 1½ miles of 6 in. and 4 in. iron mains; 12 hydrants; 30 services, galv. iron pipe. **Pressure**: ordinary, 70 lbs; fire, 100 lbs. **Financial**: cost of supply plant, \$12,000; cost of distribution system, \$10,000; annual maintenance, \$500; revenue from consumers, \$500; from public uses, \$450. **Rates**: flat rate, \$5 and upward per dwelling; bath-room \$4. Officer in charge: R. J. Tinsley.

**PORT STANLEY**, Elgin co., (700). In operation since 1913; owned by municipality. **Supply**: pumped from lake Erie, filtered through sand, ½ mile distant, to tank; electric power used, 5 h.p. to 50 h.p. **Reservoir**: tank of 65,000 gal. capacity. **Distribution**: 8 miles of C.I. and W.I. mains, ½ in. to 8 in.; 22 hydrants; 236 services, ½ in. W.I. pipe. **Pressure**: ordinary, 65 lbs; fire, 125 lbs. **Consumption**: 40,000 gal. **Financial**: total cost of plant, \$34,800; annual maintenance, \$1,300; interest, \$2,000; revenue from consumers, \$1,900; from public uses, \$1,260. **Rates**: flat rate, \$8.10 per dwelling. Officer in charge: W. Mitchell, Manager.

**PRESCOTT**, Grenville co., (3,000). In operation since 1900; owned by municipality. **Supply:** pumped from St. Lawrence river, 400 ft. distant, to mains and tank; electric power used, maximum, 75 h. p. with auxiliary steam pumping plant. **Reservoir:** 1 elevated tank 17,000 gal. capacity. **Distribution:** 7½ miles of C. I. mains, 4 in. to 12 in.; 92 hydrants; 600 services, lead pipe. **Pressure:** ordinary, 65 lbs.; fire, 80 lbs. **Consumption:** 300,000 gal. **Financial:** cost of supply plant, \$6,900; cost of distribution system, \$35,732; annual maintenance, \$6,234; revenue from consumers, \$6,000; from public uses, \$3,031. **Rates:** meter rate, 9·6c. to 35·2c. per 1,000 gal.; flat rate, \$5.40 per tap. Officer in charge: R. R. Dowsley, Superintendent.

**PRESTON**, Waterloo co., (4,954). In operation since 1907; owned by municipality. **Supply:** by gravity from springs, ½ mile distant, to reservoir, thence pumped to stand-pipe; steam and electric power used, 45 h.p.; pumps in duplicate. **Reservoir:** stand-pipe of 127,000 gal., reservoir of 65,000 gal. capacity. **Distribution:** 4 in. to 12 in. mains; 89 hydrants; 951 services, lead and galv. iron pipes. **Pressure:** ordinary, 70 lbs.; fire, 120 lbs. **Consumption:** 225,000 gal. **Financial:** cost of supply plant, \$39,214; cost of distribution system, \$101,987; annual maintenance, \$11,097; revenue, \$14,170. **Rates:** flat rate, \$6 per dwelling, \$7 for bath-room; meter rate, 6c. to 30c. per 1,000 gal. Officer in charge: T. R. Waugh, Superintendent.

**RAINY RIVER**, Rainy River district, (86.). In operation since 1910; owned by municipality. **Supply:** pumped from Rainy river, ½ mile distant, directly into mains; gasoline engine used, 25 h.p.; engines and pumps in duplicate. **Reservoirs:** 2, of 6,000 gal. each. **Distribution:** 3 miles of C. I. mains, 6 in. and 8 in.; 32 hydrants; 115 services, ½ in. galv. iron pipe. **Pressure:** ordinary, 40 lbs.; fire, 100 lbs. **Consumption:** 500,000 gal., including C. N. Ry. **Financial:** total cost of plant, \$33,000; annual maintenance, \$5,451; interest, \$540; revenue from consumers, \$4,221; from public uses, \$1,230. **Rates:** flat rate, \$9 and upward per dwelling; bath-room, \$9; meter rate, 8c. to 45c. per 1,000 gal. Officer in charge: S. Sage, Superintendent.

**RENFREW**, Renfrew co., (4,000). In operation since 1897; owned by municipality. **Supply:** pumped from Bonnechère river, ½ mile distant, to stand-pipe; water-power used, with electric and steam auxiliary pumping plants; average, 50 h.p., maximum, 200 h.p. **Reservoir:** stand-pipe of 157,000 gal. capacity. **Purification:** mechanical filter used. **Distribution:** 12 miles of concrete, C. I. and galv. iron mains, 1 in. to 18 in.; 107 hydrants; 926 services, ½ in. to 2 in. lead and galv.

## WATER-WORKS OF ONTARIO

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Iron pipes. **Pressure:** ordinary, 80 lbs.; fire, 150 lbs. **Consumption:** 300,000 gal. **Financial:** cost of distribution system, \$60,000; annual maintenance, \$3,977; revenue, \$13,343. **Rates:** flat rate, \$3 and upward, based on number of rooms; bath-room, 85. **Officer in charge:** J. R. Stewart, Town Engineer.

**RIDGETOWN**, Kent co., (480). In operation since 1912; owned by municipality. **Supply:** pumped from artesian wells,  $\frac{1}{2}$  mile distant, to stand-pipe; gas engines used, 7 h.p. to 15 h.p.; engines and pumps in duplicate. **Reservoir:** stand-pipe of 44,000 gal. capacity. **Distribution:** 4 miles of C. I. mains, 4 in. to 8 in.; 32 hydrants; 96 services, galv. iron pipe. **Pressure:** ordinary, 60 lbs.; fire, 110 lbs. **Consumption:** 31,000 gal. **Financial:** cost of supply plant, \$16,400; cost of distribution system, \$17,500; annual maintenance, \$1,631; interest, \$1,046; revenue, \$800. **Rates:** flat rate, \$10 per dwelling. **Officer in charge:** D. Break, Superintendent.

**ROCKLAND**, Russell co., (3,000). Owned by W. C. Edwards & Co. **Supply:** pumped from Ottawa river,  $\frac{1}{2}$  mile distant, to mains and tank; steam power used, 45 h.p.; pumps in duplicate. **Distribution:** 2 miles of C. I. and W. I. mains, 3 $\frac{1}{2}$  in. to 6 in.; 24 hydrants; 400 services, W. I. pipe. **Pressure:** ordinary, 40 lbs.; fire, 150 lbs. **Consumption:** 50,000 gal. **Financial:** total cost of plant, \$40,000; annual revenue from public uses, \$490. **Officer in charge:** Henry Taylor.

**ST. CATHARINES**, Lincoln co., (17,500). In operation since 1879; owned by municipality. **Supply:** by gravity from lake Erie, via Welland canal, 7 miles distant. **Reservoirs:** 2, of 55 acres and 10 acres area, respectively. **Purification:** sedimentation and liquid chlorine treatment. **Distribution:** 53 $\frac{1}{2}$  miles of W. I. and C. I. mains, 1 $\frac{1}{2}$  in. to 36 in., rock tunnel, 5 ft. by 7 ft.; 364 hydrants; 4,625 services,  $\frac{1}{2}$  in. to 8 in., lead, galv. iron and C. I. pipes. **Pressure:** 70 to 116 lbs. **Consumption:** 2,750,000 gal. **Financial:** total cost of plant, \$819,813; annual maintenance, \$7,000; interest, \$24,681; revenue from consumers, \$44,220; from public uses, \$7,885. **Rates:** flat rate, \$3.50 to \$6 per dwelling; bath-room, 85; meter rate, 4.8c. to 19.2c. per 1,000 gal. **Officer in charge:** A. Milne, Superintendent.

**ST. GEORGE**, Brant co., (550). In operation since 1888; owned by St. George Water Supply Co. **Supply:** by gravity from springs,  $\frac{1}{2}$  mile distant. **Reservoir:** 1, of 1,760 gal. capacity. **Distribution:** 3 miles of iron mains, 1 in. to 2 $\frac{1}{2}$  in.; 59 services,  $\frac{1}{2}$  in. and 1 in. pipe. **Financial:** total cost of plant, \$2,198; annual maintenance, \$163; annual

revenue, \$398. **Rates:** flat rate, 80 per dwelling. Officer in charge: J. L. Addison, Manager.

**ST. MARYS**, Perth co., (4,000). In operation since 1899; owned by municipality. **Supply:** pumped from artesian wells, 500 yds. distant, to stand-pipe, steam and electric power used, 45 to 70 h.p.; pumps are in duplicate. **Reservoir:** 1 stand-pipe of 80,000 gal. capacity. **Distribution:** 8 miles of C. I. mains, 4 in. to 10 in.; 68 hydrants; 540 services, lead and galv. iron pipes. **Pressure:** ordinary, 75 lbs.; fire, 100 to 125 lbs. **Consumption:** 75,000 gal. **Financial:** cost of supply plant, \$17,675; cost of distribution system, \$41,204; annual maintenance, \$6,436; interest, \$3,246; revenue from consumers, \$3,393; from public uses, \$2,976. **Rates:** meter rate, 30c per 1,000 gal.; flat rate, \$3 for first tap; bath-room \$5. Officer in charge: H. M. Miller.

**ST. THOMAS**, Eliz. co., (15,453). In operation since 1890; owned by municipality. **Supply:** pumped from Kettle creek and artesian wells, 1½ miles distant, directly into mains and elevated tank; steam power used, maximum, 200 h.p.; average, 100 h.p.; pumps in duplicate. **Filter:** "Hyatt" filter. **Reservoirs:** 2, of a total capacity of 25,000,000 gal. **Distribution:** 31 miles of C. I., W. I. and steel mains, ½ in. to 18 in.; 199 hydrants; 3,733 services, W. I. and lead pipes. **Financial:** annual maintenance, \$19,211; revenue, \$38,755. **Rates:** flat rate, \$3.50 and upward per dwelling; bath-room, \$3.50; meter rate, 8c. to 16c. per 1,000 gal. Officer in charge: S. O. Perry, Secretary.

**SANDWICH**, Essex co., (2,900). In operation since 1892; owned by municipality. **Supply:** from the Windsor, Ont., system (q. v.). **Distribution:** 7 miles of C. I. and galv. iron mains, 2 in. to 8 in.; 50 hydrants; 571 services, lead pipe. **Pressure:** 25 lbs. **Financial:** cost of distribution system, \$40,000; annual maintenance, \$3,800; revenue from consumers, \$4,200; from public uses, \$1,000. **Rates:** flat rate, \$5 per dwelling; bath-room, \$3; meter rate, 21c. per 1,000 gal. Officer in charge: E. R. North, Clerk.

**SANDWICH EAST**, Essex co. (See under *Walkerville*).

**SARNIA**, Lambton co., (12,000). In operation since 1876; owned by municipality. **Supply:** pumped from St. Clair river, 1½ miles distant, directly into mains; steam power used, 150 h.p.; pumps in duplicate. **Distribution:** 33 miles of C. I. and W. I. mains, ½ in. to 20 in.; 196 hydrants; 3,110 services, ½ in. to 3 in. lead and galv. iron pipes. **Pressure:** ordinary, 60 lbs.; fire 90 to 100 lbs. **Consumption:** 3,500,000 gal.

## WATER-WORKS OF ONTARIO

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**Financial:** total cost of plant, \$225,000; annual maintenance \$8,550; annual revenue, \$23,000. **Rates:** flat rate, \$1 and upward per dwelling; bath-room, \$1. Officer in charge: Richard Bell, Water-works Engineer.

**SAULT STE. MARIE**, Algoma district, (11,000). In operation since 1894, owned by Tagona Water and Light Co. **Purification:** hypochlorite of lime treatment. **Supply:** pumped from St. Mary river, 1 mile distant, directly into mains; water-power used, maximum, 300 h.p., average, 200 h.p.; pumping apparatus in duplicate. **Distribution:** 30½ miles of C. I. and galv. iron mains, ½ in. to 24 in.; 184 hydrants, 2,568 services, galvanized iron pipe. **Pressure:** ordinary, 80 lbs.; fire, 100 lbs. **Financial:** cost of supply plant, \$15,000; cost of distribution system, \$273,000; annual maintenance, \$20,000; revenue from consumers, \$50,000; from public uses, \$8,000. **Rates:** flat and meter rates; flat rate, \$1 and upward per dwelling; bath-room, \$1; meter rate, 8c. to 24c. per 1,000 gal.

**SEAFORTH**, Huron co., (2,145). In operation since 1876; owned by municipality. **Supply:** pumped from Silver creek, ½ mile distant, directly into mains; steam power used, maximum, 85 h.p., average, 60 h.p.; pumps and boilers in duplicate. **Distribution:** 3 miles of mains; 13 hydrants; 40 services. **Pressure:** ordinary, 60 lbs.; fire, 110 lbs. **Consumption:** 200,000 gal. **Financial:** total cost of plant, \$15,000; annual maintenance, \$1,100; revenue, \$750. **Rates:** flat rate, \$5 to \$30 per service. Water used only for fire protection, industrial and lawn-watering purposes.

**SHELBOURNE**, Dufferin co., (700). In operation since 1889; owned by municipality. **Supply:** pumped from artesian wells, ½ mile distant, to steel tank; gasoline engines and wind power used, 6 to 8 h.p. **Reservoir:** 1 tank, 120,000 gal. capacity. **Distribution:** 3 miles of iron mains, 2 in. and 10 in.; 23 hydrants; 270 services, iron pipe. **Pressure:** 60 lbs. **Consumption:** 15,000 gal. **Financial:** total cost of plant, \$32,500; annual maintenance, \$1,100; revenue, \$1,300. **Rates:** flat rate, \$5 per dwelling; bath-room, \$2. Officer in charge: W. Whitehead.

**SIMCOE**, Norfolk co., (4,117). In operation since 1908; owned by municipality. **Supply:** pumped from springs, 1 mile distant, to stand-pipe, or 1½ miles directly into mains; gas engines used, 50 to 80 h.p.; pumping apparatus in duplicate. **Reservoir:** stand-pipe, 20 ft.  $\times$  65 ft.; 127,000 gal. **Distribution:** 11 miles of C. I. and W. I. mains, 1½ in. to 8 in.; 69 hydrants; 808 services, ½ in. lead and galv. iron pipes. **Pressure:** ordinary, 60 lbs.; fire, 125 lbs. **Consumption:** 173,175 gal.

**Financial:** cost of supply plant, \$24,914; cost of distribution system, \$65,098; annual maintenance, \$2,297; debenture interest, \$4,732; revenue from consumers, \$5,832; from public uses, \$2,690. **Rates:** meter rate, 8c. to 24c. per 1,000 gal.; flat rate, \$6 and upward per dwelling. Officer in charge: W. C. McCall, Superintendent.

**SMITHS FALLS**, Lanark co., (5,000). In operation since 1899; owned by municipality; a private company had supplied the town from 1887 to 1899. **Supply:** pumped from Rideau river, 9 miles distant, directly into mains; water and steam power used, 100 to 175 h.p. **Distribution:** 11½ miles of C. I. and steel mains, 4 in. to 10 in.; 98 hydrants; 1,200 services, ½ in. and ¾ in. lead pipe. **Pressure:** ordinary, 60 lbs. fire, 100 lbs. **Financial:** cost of supply plant, \$100,000; cost of distribution system, \$100,000; annual maintenance, \$6,000; revenue, from consumers, \$12,000; from public uses, \$6,000. **Rates:** flat rate, \$10 per dwelling; meter rate, 5c. per 1,000 gal. Officer in charge: J. G. Hayes, Superintendent.

**SOUTHAMPTON**, Bruce co., (1,200). In operation since 1901; owned by municipality. **Supply:** pumped from lake Huron, ½ mile distant, to stand-pipe; steam and electric power used, 50 h.p.; pumping apparatus in duplicate. **Reservoir:** stand-pipe of 138,000 gal. capacity. **Distribution:** 4 miles of C. I. mains, 4 in. to 8 in.; 33 hydrants; 275 services, galv. iron pipe. **Pressure:** ordinary, 67 lbs.; fire, 110 lbs. **Consumption:** town, 100,000 gal.; fish hatchery, 185,000 gal. **Financial:** cost of supply plant, \$8,000; cost of distribution system, \$35,000; annual maintenance, \$2,200; interest, \$1,000; revenue, \$2,572. **Rates:** flat rate, \$4 per dwelling; bath-room, \$5; meter rate, 18c. per 1,000 gal. Officer in charge: G. W. Martin.

**STAYNER**, Simcoe co., (1,100). In operation since 1899; owned by municipality. **Supply:** by gravity from springs, 3 miles distant. **Distribution:** C. I. mains; 14 hydrants; services, ½ in. galv. iron pipe. **Pressure:** 65 lbs. **Consumption:** 100,000 gal. **Financial:** annual maintenance, \$300; revenue, \$850. **Rates:** flat rate, \$4 for first tap.

**STEELTON**, Algoma district, (5,500). In operation since 1906; owned by municipality. **Supply:** pumped from artesian wells. **Reservoir:** 1, of 650,000 gal. capacity. **Distribution:** 9½ miles of C. I. mains, 4 in. to 12 in.; 2 in. mains in addition to this; 47 hydrants; 1,000 services, ½ in. galv. iron and lead pipes. **Pressure:** ordinary, 80 lbs.; fire, 100 lbs. **Consumption:** 240,000 gal. **Financial:** total cost of plant, \$120,000; annual revenue, \$9,000. **Rates:** flat rate, \$8 and upward per dwelling. Officer in charge: W. B. Redfern, Town Engineer.

**STOUFFVILLE**, York co., (1,000). In operation since 1897; owned by municipality. **Supply**: by gravity from springs,  $2\frac{1}{2}$  miles distant. **Reservoir**: 1, of 250,000 gal. capacity. **Distribution**: 5 miles of C. I. mains, 4 in. to 12 in.; 38 hydrants; 200 services,  $\frac{1}{2}$  in. galv. iron pipe. **Pressure**: ordinary, 60 lbs.; fire, 50 to 56 lbs. **Financial**: total cost of plant, \$30,000; revenue from consumers, \$886; from public uses, \$1,000. **Rates**: flat rate, \$4 per dwelling; bath-room, \$2. Officer in charge: J. Urquhart, Clerk.

**STRATFORD**, Perth co., (10,000). In operation since 1883; owned by municipality. **Supply**: pumped from Avon river,  $\frac{1}{2}$  mile distant, and from 6 artesian wells, through filter, directly into mains; electric and steam power used, maximum, 70 h.p., average, 22 h.p. **Purification**: mechanical filter used. **Distribution**:  $29\frac{1}{4}$  miles of C. I. and W. I. mains, 2 in. to 12 in.; 190 hydrants; 2,200 services, lead and galv. iron pipes. **Pressure**: ordinary, 60 lbs.; fire, 100 to 120 lbs. **Consumption**: 1,200,000 gal. **Financial**: total cost of plant, \$266,000; annual maintenance, \$20,213; interest, \$10,030; revenue from consumers, \$34,136; from public uses, \$6,540. **Rates**: flat rate, \$5 to \$12 per dwelling; bath-room, \$7.50; meter rate,  $7\frac{1}{2}$ c. to 54c. per 1,000 gal. Officer in charge: P. McNab, Superintendent.

**STRATHROY**, Middlesex co., (3,100). In operation since 1903; owned by municipality. **Supply**: pumped from Sydenham river, 200 ft. distant, to stand-pipe; electric power used, 20 h.p. **Reservoir**: 1, of 150,000 gal. capacity. **Distribution**: 6 miles of C. I. mains, 4 in. to 8 in.; 42 hydrants; 210 services, galv. iron pipe. **Pressure**: ordinary, 35 lbs.; fire, 100 lbs. **Consumption**: 250,000 gal. **Financial**: total cost of plant, \$45,000; annual maintenance, \$200; revenue from consumers, \$3,000; from public uses, \$1,760. **Rates**: flat rate, \$1 per tap; bath-room, \$6.50; meter rate, 5c. per 1,000 gal. Officer in charge: E. R. Smithrim, Superintendent.

**STREETSVILLE**, Peel co., (600). In operation since 1912; owned by municipality. **Supply**: pumped from Credit river, directly into mains; water-power used; maximum, 85 h.p., average, 25 h.p. **Distribution**: 1 mile of 6 in. C. I. mains; 14 hydrants; 26 services. **Pressure**: ordinary, 50 lbs.; fire, 110 lbs. **Financial**: cost of supply plant, \$1,500; cost of distribution system, \$5,000; interest, \$300; revenue, \$660. **Rates**: flat rate, \$3 and upwards per dwelling; bath-room, \$4. Officer in charge: F. Vansickle.

**STURGEON FALLS**, Nipissing dist., (2,282). In operation since 1903; pumping station owned by Imperial Paper Mills, Ltd.; remainder of

system owned by municipality. **Supply:** pumped from Sturgeon river, directly into mains; water power used. **Filter:** mechanical filter used. **Distribution:** 5½ miles of C. I. and galv. iron mains, 4 in. to 10 in.; 47 hydrants; 485 services. **Pressure:** ordinary, 40 lbs.; fire, 100 lbs. **Financial:** total cost of plant, \$46,000; annual maintenance, \$1,267; revenue, \$3,149. **Rates:** flat rate used. Officer in charge: O. Forcier, Superintendent.

**SUDBURY**, Sudbury dist., (7,040). In operation since 1895; owned by municipality. **Supply:** pumped from Ramsay lake, 1 mile distant, to elevated tank; electric power used, maximum, 500 h.p., average, 200 h.p.; 300 h.p. steam auxiliary pumping plant. **Reservoir:** elevated tank of 65,000 gal. capacity. **Distribution:** 13½ miles of C. I. mains, 4 in. to 12 in.; 71 hydrants; 1,292 services, ½ in. to 6 in. galv. iron, C. I. and lead pipes. **Pressure:** ordinary, 75 lbs.; fire, 100 lbs. **Consumption:** 1,050,000 gal. **Financial:** total cost of plant, \$222,196; annual maintenance, \$12,130; interest, \$4,169; annual revenue, \$21,380. **Rates:** flat rate, \$10.66 and upward per dwelling; bath-room, \$5.32; meter rate, 6c. to 25c. per 1,000 gal., quarterly minimum of \$8. Officer in charge: R. H. Martindale, Superintendent.

**TAVISTOCK**, Oxford co., (200). In operation since 1911, owned by municipality. **Supply:** pumped from artesian wells, ½ mile distant, to elevated tank; steam power used. **Reservoir:** elevated tank of 38,000 gal. capacity. **Distribution:** 1½ miles, C. I. and iron mains, 4 in. to 8 in.; 15 hydrants; 39 services, C. I. pipe. **Pressure:** 52 lbs. **Consumption:** 14,000 gal. **Financial:** total cost of plant, \$20,000; annual maintenance, \$350; revenue from consumers, \$267; from public uses, \$5.50. **Rates:** \$1.50 and upward per dwelling. Officer in charge: J. G. Field, Clerk.

**TEESWATER**, Bruce co., (810). In operation since 1889; owned by municipality. **Supply:** pumped from Teeswater river, directly into mains; steam power used, 80 h.p. **Distribution:** 1 mile of C. I. mains, 4 in. and 6 in.; 9 hydrants. **Pressure:** fire, 140 lbs. **Financial:** total cost of plant, \$15,000; annual maintenance, \$400. Only used for fire protection. Officer in charge: Walter Rose.

**THAMESVILLE**, Kent co., (785). In operation since 1911; owned by municipality. Water not used for drinking purposes. **Supply:** pumped from Cornwall creek, 100 ft. distant, directly into mains; steam power used; pumps and boilers are in duplicate. **Reservoir:** 1, of 125,000 gal. capacity. **Distribution:** 1½ miles of C. I. mains, 4 in.



*Commission of Conservation*

Toronto Filtration Plant. Interior of Filter Room. United States Public Health Service.

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TIL

TILL

## WATER-WORKS OF ONTARIO

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to 8 in.; 17 hydrants; 47 services, galv. iron pipe. **Pressure:** ordinary, 30 lbs.; fire, 80 to 150 lbs. **Consumption:** 30,000 gal. **Financial:** cost of supply plant, \$2,000; cost of distribution system, \$6,000; annual maintenance, \$400; revenue; \$190. **Rates:** flat rate, bath-room, \$5. Officer in charge: S. West.

**THESSALON**, Algoma district, (1,500). In operation since 1896; owned by municipality. **Supply:** pumped from lake Huron, 1,000 ft. distant, directly into mains; steam power used, maximum, 150 h.p., average, 30 h.p.; pumps and boilers in duplicate. **Distribution:** 2½ miles of C. I. and W. I. mains, 2 in. to 6 in.; 24 hydrants; 310 services, ½ in. to 1 in. pipe. **Pressure:** ordinary, 40 lbs.; fire, 120 lbs. **Financial:** cost of supply plant, \$5,000; cost of distribution system, \$22,000; annual maintenance, \$2,600; revenue from consumers, \$3,953; from public uses, \$880. **Rates:** flat rate, \$7.20 and upward per dwelling, bath-room, \$4. Officer in charge: E. E. Thompson.

**THOROLD**, Welland co., (4,800). In operation since 1908; owned by municipality. **Supply:** by gravity from Welland canal, 1 mile distant, to pumping station, thence pumped to stand-pipe; electric and water-power used, 50 to 100 h.p.; pumps are in duplicate. **Reservoir:** stand-pip. 100,000 gal. capacity. **Distribution:** 9 miles of C. I. mains, 4 in. to 12 in.; 67 hydrants; 500 services, ½ in. galv. iron pipe. **Pressure:** ordinary, 60 lbs; fire, 160 lbs. **Consumption:** 200,000 gal. **Financial:** cost of supply plant, \$12,000; cost of distribution system, \$85,000; annual revenue from consumers, \$3,700; from public uses, \$2,000. **Rates:** flat rate, \$4 to \$6 per dwelling; bath-room \$5; meter rate, 4.8c. to 19.2c. per 1,000 gal. Officer in charge: L. S. O'Connor, Superintendent.

**TILBURY**, Kent co., (1,406). In operation since 1902; pumping system owned by Michigan Central railway, distribution by town. **Supply:** pumped from Baptiste creek, 3½ miles distant, to tank; gasolene engines used, 55 h.p. **Reservoirs:** 2, of 79,000 gal. and 90,000 gal. capacity, respectively. **Distribution:** 3½ miles of C. I. mains, 4 in. and 6 in.; 20 hydrants; 121 services, ½ in. to 1½ in. **Pressure:** ordinary, 15 lbs; fire, 80 to 100 lbs. **Consumption:** 77,168 gal. **Financial:** cost of distribution system, \$15,000; annual maintenance, \$1,200; revenue from consumers, \$808; from public uses, \$980. **Rates:** flat rate, \$5 per dwelling; bath-room, \$5. Water is not used for drinking or cooking. Officer in charge: W. A. Hutton, Town Clerk.

**TILLSONBURG**, Oxford co., (3,000). There are 2 systems; 1 owned by municipality for fire protection, and the other owned by the Tillsonburg Water-Works Co., for domestic purposes.

## COMMISSION OF CONSERVATION

**FIRE PROTECTION SYSTEM:** in operation since 1875. **Supply:** pumped from spring, 5 miles distant, directly into mains; water-power used, 75 h. p. **Distribution:** 5 miles of C. I. mains, 4 in. and 6 in.; 43 hydrants. **Pressure:** 110 lbs. to 150 lbs. **Financial:** total cost of plant, \$30,000; annual maintenance, \$500.

**DOMESTIC SYSTEM:** (2,400) in operation since 1895. **Supply:** pumped from spring, 1 mile distant, to stand-pipe; steam, gas, electric and water-power used, maximum, 60 h.p., average, 15 h.p. **Reservoir:** 1, of 244,600 gal. capacity. **Distribution:** 11 miles of C. I. and W. I. mains,  $\frac{1}{2}$  in. to 8 in.; 600 services,  $\frac{1}{2}$  to 1 in. pipe. **Pressure:** 35 lbs. **Consumption:** 200,000 gal. **Financial:** cost of supply plant, \$31,343; cost of distribution system, \$22,318; annual maintenance, \$2,000; revenue, \$6,000. **Rates:** both flat and meter rates with a minimum charge of \$6 per year.

**TORONTO**, York co., (500,000). In operation since 1841; rebuilt in 1873-1878; owned by municipality. **Supply:** pumped from lake Ontario,  $1\frac{1}{2}$  miles distant, directly into mains and reservoir; steam and electric power used, average, 7,000 h. p.; maximum, 10,000 h. p. **Purification:** slow sand filtration; mechanical filter in construction. **Reservoir:** 1, of 33,000,000 gal. capacity; stand-pipe of 198,000 gal. capacity. **Distribution:** 565 miles of C. I. mains, 3 in. to 36 in.; 6,283 hydrants; 91,500 services, lead and iron pipes. **Pressure:** ordinary, 40 to 100 lbs.; fire pressure in commercial section, 300 lbs. **Consumption:** 50,000,000 gal. **Financial:** cost of supply plant, \$2,540,590; annual maintenance, \$750,765; interest, \$476,699; revenue from consumers, \$870,065, from public uses, \$207,127. **Rates:** flat rate, \$2 and upward per dwelling, according to number of rooms; bath-room, \$2.75; meter rate, 7 $\frac{1}{2}$ c. and 10c. per 1,000 gal. Officer in charge: R. C. Harris, Commissioner of Works.

**TRENTON**, Hastings co., (5,000). In operation since 1890; owned by the Trenton Electric and Water Co. **Supply:** pumped from springs,  $\frac{1}{2}$  mile distant; electric power used, average, 20 h.p., maximum, 125 h.; pumps and motors in duplicate. **Reservoirs:** 2, of 10,000 and 20,000 gal. capacity, respectively. **Distribution:** 15 miles of C. I. and W. I. mains, 4 in. and 6 in.; 3 hydrants; 400 services,  $\frac{1}{2}$  in. galv. iron pipe. **Pressure:** ordinary, 65 lbs.; fire, 75 lbs. **Consumption:** 200,000 gal. **Financial:** cost of supply plant, \$30,000; cost of distribution system, \$60,000; annual maintenance, \$2,500; revenue, \$5,600. **Rates:** flat rate, \$5 per tap; meter rate, 6-4c. to 16c. per 1,000 gal.

## WATER-WORKS OF ONTARIO

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**UXBRIDGE**, Ontario co., (1,700). For fire protection and bath-rooms only. In operation since 1874; owned by municipality. **Supply**: pumped from 2 ponds, supplied by springs, directly into mains; steam power used, 40 h.p. **Distribution**: 5½ miles of 6 in. C. I. mains; 25 hydrants. **Pressure**: Ordinary, 100 lbs; fire, 125 lbs. **Financial**: total cost of plant, \$20,000; annual maintenance, \$500. **Rates**: bath-room, \$5. Officer in charge: W. W. Johnston.

**WALKERTON**, Bruce co., (3,295). In operation since 1891; owned by municipality. **Supply**: pumped from springs, 1 mile distant, and 2 artesian wells to reservoir and into mains; steam and electric power used, maximum, 60 h.p., average, 10 h.p.; boilers in duplicate. **Reservoir**: 1, of 300,000 gal. capacity. **Distribution**: 5 miles of C. I. mains, 4 in. to 8 in.; 52 hydrants; 425 services, galv. iron and lead pipes. **Pressure**: ordinary, 55 lbs.; fire, up to 125 lbs. **Financial**: total cost of plant, \$45,000; annual maintenance, \$2,335; revenue, \$3,697. **Rates**: flat rate, \$4 and upward per dwelling according to number of rooms; bath-room, \$5; meter rate, 12c. to 18c. per 1,000 gal.

**WALKERVILLE**, Essex co. (water system supplies also Ford and Sandwich East, 7,500). In operation since 1880; owned by Walkerville Water Co., Ltd. **Supply**: by gravity from Detroit river, 300 ft. distant, to screen well, thence pumped directly into mains; steam power used, average 100 h.p., maximum, 380 h.p.; connected with Windsor system for emergencies. **Purification**: water treated with hypo-chlorite of lime. **Distribution**: 26 miles of C. I. mains, 3 in. to 16 in.; 199 hydrants; 1,450 services; ½ in. to 6 in. lead and iron pipes. **Pressure**: ordinary, 65 lbs.; fire, 100 to 120 lbs. **Consumption**: 2,500,000 gal. Large portion is used for manufacturing purposes. **Financial**: cost of supply plant, exclusive of boilers, \$110,000; cost of distribution system, \$120,000; revenue from public uses, \$4,200. **Rates**: flat rate, \$4.80 per dwelling; bath-room, \$1.60; meter rate, 6c. per 1,000 gal.

**WATERLOO**, Waterloo co., (4,900). In operation since 1880; owned by municipality, since 1899. **Supply**: pumped from artesian wells at plant to stand-pipe and directly into mains; electric power used with steam auxiliary, 230 h.p.; mains can be supplied from Berlin system. **Reservoirs**: 3, of 200,000 gal., 160,000 gal. and 40,000 gal. capacity, respectively; stand-pipe of 225,000 gal. capacity. **Distribution**: 10 miles of C. I. and W. I. mains, 1½ in. to 12 in.; 84 hydrants; 840 services, ½ in. galv. iron and lead pipes. **Pressure**: ordinary, 80 lbs.; fire, 110 lbs. **Consumption**: 450,000 gal. **Financial**: cost of supply

plant, \$41,000; cost of distribution system, \$73,000; annual maintenance, \$6,541; interest, \$2,960; revenue from consumers, \$11,176; from public uses, \$2,550. **Rates:** flat and meter rates; flat rate, \$3.75 for first tap, bath-room, \$6; meter rate, 5½c. to 30c. per 1,000 gal.

**WELLAND**, Welland co., (7,204). In operation since 1888; owned by municipality. **Supply:** pumped from Welland canal, directly into mains; there are 2 interconnected pumping stations, 1 on each side of the canal, both operated by water-power; the first uses an average of 40 h.p. and a maximum of 170 h.p. and has an auxiliary steam plant; the second uses an average of 140 h.p. and a maximum of 250 h.p. and has an auxiliary electric plant. **Purification:** hypochlorite of lime treatment. **Distribution:** 16½ miles of C. I. mains, 4 in. to 16 in.; 134 hydrants; 1,597 services, ½ in. to 2 in. lead and galv. iron pipes. **Pressure:** ordinary, 70 lbs.; fire, 110 lbs. **Consumption:** 1,203,077 gal. **Financial:** cost of supply plant, \$100,722; cost of distribution system, \$94,728; annual maintenance, \$7,977; debentures and sinking fund, \$12,205; revenue from consumers, \$13,627; from public uses, \$5,095. **Rates:** flat rate, average of \$10 per dwelling; meter rate, 5c per 1,000 gal. Officer in charge: F. D. Milo, Superintendent.

**WESTON**, York co., (1,250). In operation since 1910; owned by municipality. **Supply:** pumped from Humber river, 1 mile distant, to stand-pipe and mains; electric power used, average, 45 h.p., maximum, 60 h.p. **Filter:** mechanical filter. **Reservoir:** stand-pipe, 20 ft. × 80 ft. **Distribution:** 6 miles of C. I. mains, 4 in. to 10 in.; 100 hydrants; 325 services, ½ in. lead and galv. iron pipes. **Pressure:** ordinary, 52 lbs.; fire, 110 lbs. **Consumption:** 25,000 gal. **Financial:** total cost of plant, \$65,000; annual maintenance, \$2,706; revenue, \$3,162. **Rates:** meter rate, 12c. to 24c. per 1,000 gal., minimum of \$7 per dwelling. Officer in charge: A. G. Pierson, Superintendent.

**WHITBY**, Ontario co., (2,600). In operation since 1904; owned by municipality. **Supply:** pumped from lake Ontario, 2 miles distant, to stand-pipe; electric power used, average, 50 h.p., maximum, 160 h.p.; steam auxiliary plant. **Purification:** slow sand filtration. **Reservoir:** stand-pipe of 157,000 gal. capacity. **Distribution:** 9½ miles of C. I. mains 4 in. to 10 in.; 55 hydrants; 390 services, ½ in. to 1 in. galvanized iron and lead pipes. **Pressure:** ordinary, 47 lbs; fire, 125 lbs. **Consumption:** 120,000 gal. **Financial:** cost of supply plant, \$21,000; cost of distribution system, \$64,000; annual maintenance, \$3,300; interest, \$3,625; revenue from consumers, \$5,250; from public uses, \$1,560.

**Rates:** flat rate, \$5 for first tap; meter rate, 7c. per 1,000 gal. Officer in charge: G. W. P. Every, Superintendent.

**WIARTON**, Bruce co., (2,200). In operation since 1888, owned by municipality. **Supply:** pumped from Colpoys bay, 1 mile distant, to reservoir and mains; electric and steam power used, pumps are in duplicate. **Reservoir:** 1, of 278,000 gal. capacity. **Distribution:** 6½ miles of iron mains, 1 in. to 10 in.; 35 hydrants; 500 services. **Pressure:** ordinary, 84 lbs.; fire, 110 lbs. **Consumption:** 240,000 gal. **Financial:** total cost of plant, \$55,000; annual maintenance, \$3,000; interest, \$275; revenue, \$5,000. **Rates:** flat rate, \$5 per dwelling. Officer in charge: D. G. McDonald, Town Engineer.

**WINDSOR**, Essex co., (27,000). In operation since 1872-73; owned by municipality. Also supplies Sandwich, Ont. **Supply:** pumped from Detroit river, ½ mile distant, directly into mains; steam power used; average, 150 h.p., pumps are in duplicate, and, in emergency, water can be obtained from the Walkerville system. **Purification:** water treated with hypochlorite of lime. **Distribution:** 49 miles of C. I. mains, 4 in. to 16 in.; 432 hydrants; 3,896 services, 2 in. lead pipe. **Pressure:** ordinary, 55 lbs.; fire, 90 to 100 lbs. **Consumption:** 7,500,000 gal. **Financial:** total cost of plant, \$492,000; annual maintenance (including debentures), \$52,759; revenue from consumers, \$45,805; from public uses, \$9,125. **Rates:** meter rate, 10c. per 1,000 gal.; flat rate on assessment basis, \$3.20 and upward. Officer in charge: Joseph Hall, Superintendent.

**WINGHAM**, Huron co., (2,659). In operation since 1879; owned by municipality. **Supply:** pumped from artesian wells, 3,000 ft. distant, to stand-pipe; water and electric power used, 45 h.p.; pumps are in duplicate. **Reservoir:** stand-pipe of 100,000 gal. capacity. **Distribution:** 4 miles of C. I. mains, 2 in. to 10 in.; 37 hydrants; 250 services, galv. iron pipe. **Pressure:** ordinary, 76 lbs.; fire, 120 lbs. **Consumption:** 120,000 gal. **Financial:** cost of plant, \$49,000; annual maintenance, \$1,578; revenue, \$3,000. **Rates:** flat rate, \$3.75 and upward per dwelling; bath-room, \$4.50; meter rate, 18c. to 30c. per 1,000 gal. Officer in charge: H. Campbell, Superintendent.

**WOODSTOCK**, Oxford co., (10,000). Fire protection system built in 1880; present system in operation since 1891, owned by municipality. **Supply:** by gravity from springs, 4 miles distant, to city limits, thence pumped to reservoir and mains; electric power used, average, 140 h.p. maximum, 175 h.p.; steam auxiliary plant. **Reservoir:** 1, of 1,000,000

gal. capacity. **Distribution:** 29 miles of C. L. and W. I. mains, 4 in. to 12 in.; 172 hydrants; 2,400 services, galv. iron pipe. **Pressure:** ordinary, 80 lbs., fire, 125 lbs. **Consumption:** 1,375,000 gal. **Financial:** cost of supply plant, \$87,476, cost of distribution system, \$149,642; annual maintenance, \$15,245, interest, \$8,442, revenue from consumers, \$27,321, from public uses, \$6,731. **Rates:** meter rate, 6½¢ to 20¢ per 1,000 gal.; flat rate, \$6 for first cap. bathroom, \$3.00. Officer in charge, J. G. Archibald, Superintendent.

## MANITOBA

**BRANDON, (18,000).** In operation since 1893; owned by municipality. **Supply:** by gravity from Assiniboine river, 1,000 ft. distant, to wells, thence pumped through filters to mains; steam power used; pumps in duplicate. **Purification:** 8 "New York" pressure filters used. **Distribution:** 27 miles of C. I. mains, 3 in. to 16 in.; 115 hydrants; 2,000 services, ½ in. to 4 in. lead and galv. iron pipe. **Pressure:** ordinary, 45 to 85 lbs; fire, 100 to 140 lbs. **Consumption:** 1,290,000 gal. **Financial:** total cost of plant, \$583,265; annual maintenance, \$63,015; revenue, \$77,198. **Rates:** meter rate, 6½c. to 40c. per 1,000 gal. Officer in charge: R. E. Speakman, City Engineer.

**CARBERY, (900).** In operation since 1907; owned by municipality. **Supply:** pumped from wells to reservoir, thence into mains; steam power used; boilers in duplicate. **Reservoir:** 1, of 35,000 gal. capacity. **Distribution:** 1½ miles of wooden mains, 4 in. to 8 in.; 25 hydrants. **Pressure:** fire, 100 lbs. **Financial:** cost of supply plant, \$2,500; cost of distribution system, \$13,500; annual maintenance, \$1,200. For fire protection only.

**CARMAN, (270).** In operation since 1909; owned by municipality. **Supply:** by gravity from Boyne river, 200 ft. distant, to reservoir, thence pumped to elevated tank; steam power used, 100 h.p. **Reservoirs:** 1, of 20,000 gal. and elevated tank of 60,000 gal. capacity. **Distribution:** 2½ miles of wooden and iron mains, 4 in. to 10 in.; 25 hydrants; 61 services, ½ in. galv. iron pipe. **Pressure:** ordinary, 50 lbs.; fire, 130 lbs. **Consumption:** 30,000 gal. **Financial:** total cost of plant, \$63,320; annual maintenance, \$1,100; interest, \$232; revenue, \$1,000. **Rates:** meter rate, 25c. per 1,000 gal. Officer in charge: F. W. Evans, Superintendent.

**DAUPHIN, (5,000).** In operation since 1913; owned by municipality. **Supply:** by gravity from Edward lake, 10 miles distant. **Distribution:** 18½ miles of wooden and iron mains, 6 in. to 12 in.; 70 hydrants; 137 services, ½ in. pipe. **Pressure:** 95 lbs. **Financial:** cost of supply plant, \$176,094; cost of distribution system, \$95,957; interest, \$23,500; annual revenue from consumers, \$6,060; from public uses, \$5,000. **Rates:** flat rate, \$8 and upward per dwelling; bath-room, \$7; meter rate, 8c. to 32c. per 1,000 gal. Officer in charge: John Watson, Superintendent.

**GRANDVIEW, (900).** In operation since 1904; owned by municipality. **Supply:** pumped from Valley river, 1,500 ft. distant, to tank or directly into mains, gasoline engine used, 6 h.p. **Filter:** charcoal and sand filter. **Reservoir:** 1 tank of 30,000 gal. capacity. **Distribution:** 1 mile of iron mains, 2 in. and 2½ in., 7 hydrants, 100 services, iron pipe. **Consumption:** 10,000 gal. **Financial:** total cost of plant, \$3,000; annual maintenance, \$1,100. **Rates:** flat rate on assessment basis. Officer in charge: Peter Hume.

**NEEPAWA, (2,300).** In operation since 1913; owned by municipality. **Supply:** by gravity from Boggy creek, 1½ miles distant, to pump-house, thence pumped directly into mains, electric power used, 50 h.p. **Filter:** pressure sand filter used. **Reservoir:** stand-pipe of 100,000 gal. capacity. **Distribution:** 4 miles of C. I. mains, 4 in. to 8 in., 48 hydrants; services, galv. iron and lead pipe. **Pressure:** ordinary, 35 lbs.; fire, 125 lbs. **Financial:** cost of supply plant, \$35,000; cost of distribution system, \$60,000. **Rates:** meter rate, 30c. per 1,000 gal. Officer in charge: J. W. Bradley, Secretary-treasurer.

**PORTE LA PRAIRIE, (3,600).** In operation since 1905; owned by municipality. **Supply:** pumped from Assiniboin river, 3 miles distant, to reservoirs and mains; steam and electric power used, average, 75 h.p., maximum 100 h.p.; pumping apparatus in duplicate. **Purification:** sand filter. **Reservoirs:** 2, of 250,000 gal. and 500,000 gal. capacity, respectively. **Distribution:** 14½ miles of C. I. and wooden mains, 6 in. to 12 in.; 146 hydrants; 520 services, ½ in. to 2 in. lead pipe. **Pressure:** ordinary, 40 lbs.; fire, 125 lbs. **Consumption:** 300,000 gal. **Financial:** total cost of plant, \$225,000; annual maintenance, \$23,496; interest and sinking fund, \$29,316; revenue, \$48,000. **Rates:** meter rate, 7c. to 40c. per 1,000 gal. Officer in charge: R. Pride.

**RATHWELL, (200).** Owned by municipality. **Supply:** by gravity from springs, 2 miles distant. **Distribution:** water is purchased from the C. P. R.; at present there is only a central hydrant from which consumers draw their water.

**ST. BONIFACE, (7,740).** In operation since 1904; owned by municipality. **Supply:** pumped from wells, 1 mile distant, to reservoirs, thence to elevated tank or mains; electric power used; steam auxiliary plant. **Reservoirs:** 2, of 500,000 gal. capacity each and elevated tank of 86,000 gal. capacity. **Distribution:** 27 miles of C. I. mains, 4 in. to 12 in.; 140 hydrants; 1,548 services, ½ in. and 1 in. lead pipe.





Winnipeg Water-works — Interior of 18,000,000 gal. Reservoir

**Pressure:** ordinary, 50 to 60 lbs.; fire, 100 lbs. **Consumption:** 250,000 gal. **Financial:** total cost of plant, \$541,887; annual maintenance, \$29,987; interest, \$26,500; revenue from consumers, \$29,480, from public uses, \$8,400. **Rates:** meter rate, 25c. and 50c. per 1,000 gal., less 10 to 25 per cent discount. Officer in charge: M. P. Blair, City Engineer.

**SELKIRK**, (3,500). In operation since 1910; owned by municipality. **Supply:** pumped from well in town to elevated tank or mains; gasoline engines and electric power used, maximum, 35 h.p., average, 10 h.p. **Reservoir:** elevated tank of 60,000 gal. capacity. **Distribution:** 7½ miles of C. I. mains, 4 in. to 10 in.; 51 hydrants; 111 services, ½ in. to 1 in. lead pipe. **Pressure:** ordinary, 50 lbs.; fire, 120 lbs. **Financial:** cost of supply plant, \$14,000; cost of distribution system, \$46,000; annual maintenance, \$2,400; interest, \$3,000; revenue, \$2,100. **Rates:** meter rates 25c. to 40c. per 1,000 gal.; flat rate, \$7 and upward per dwelling. Officer in charge: Chairman of Water Committee.

**SOURIS**, (1,200). In operation since 1912; owned by municipality. **Supply:** pumped from wells to compression tank; producer gas engines used, 85 h.p.; whole plant in duplicate. **Reservoir:** 1, of 100,000 gal. capacity. **Distribution:** 7 miles of C. I. mains, 4 in. to 8 in.; 70 hydrants; 175 services, galv. iron pipe. **Pressure:** ordinary, 40 lbs.; fire, 150 lbs. **Consumption:** 30,000 gal. **Financial:** cost of supply plant, \$30,500; cost of distribution system, \$83,000; annual maintenance, \$2,300; interest, \$6,126; revenue, \$4,000. **Rates:** meter rate, 40c. to 50c. per 1,000 gal. Officer in charge: P. C. Smith, Town Engineer.

**THE PAS**, (1,200). System in construction; owned by municipality. **Supply:** by gravity from Saskatchewan river, ½ mile distant, to deep well, thence pumped to sedimentation basin and through filters to mains or tanks; Diesel oil engine used, maximum, 240 h.p. **Filter:** "Roberts" filter used. **Distribution:** 2½ miles of steel mains, 8 in. to 12 in.; 27 hydrants. **Financial:** cost of supply plant, \$40,000; cost of distribution system, \$36,000.

**WINNIPEG**, (168,000). In operation since 1899; owned by municipality. **Supply:** pumped from artesian wells, 2 to 12 miles distant, to reservoirs; steam and electric power used, average, 1,228 h.p.; each well has a separate pump. **Reservoirs:** 3, of 300,000 gal., 6,000,000 gal. and 18,000,000 gal. capacity, respectively. **Distribution:** 260 miles of C. I. mains, 4 in. to 20 in.; 2,072 hydrants; 32,108 services, ½ in. to 1 in.,

lead and 4 in. to 6 in. C. I. pipes. **Pressure:** ordinary, 50 lbs.; fire, 80 lbs. **Consumption:** 8,000,000 gal. **Financial:** cost of supply plant, \$4,121,191; cost of distribution system, \$2,205,777; annual maintenance, \$323,416; interest, \$251,336; revenue from consumers, \$510,000; from public uses, \$70,000. **Rates:** flat rate, \$7 and upward per dwelling, according to size; meter rate, 23c. per 1,000 gal.

The city has under construction a supply system by gravity fr Shoal lake, 95 miles distant, at an estimated cost of \$13,000,000.

**HIGH PRESSURE SYSTEM:** Winnipeg has also a high pressu. system in the business portion of the city, which has been in operation since 1907. The water is pumped from the Red river, producer gas engines, consisting of 6 units of an aggregate capacity of 9,000 gal. per minute, being used. The engines can also be supplied from the city gas mains. The distribution system consists of 12½ miles of 8 in. to 20 in. mains, to which there are connected 157 hydrants. The pressure is 300 lbs. Officer in charge: W. P. Brereton, City Engineer.

## SASKATCHEWAN

**ARCOLA**, (1,200). In operation since 1907; owned by municipality. **Supply**: by gravity from springs, 3½ miles distant. **Distribution**: 6 miles of wooden mains, 8 in. and 12 in.; 13 hydrants; 60 services, ½ in. pipe. **Pressure**: 60 lbs. **Consumption**: 100,000 gal. **Financial**: cost of supply plant, \$10,000; cost of distribution system, \$70,000; annual maintenance, \$1,000; revenue, \$3,200. **Rates**: flat rate, \$15 per dwelling. Officer in charge: M. McGraw.

**BATTLEFORD**, (500). In operation since 1913; owned by municipality. **Supply**: pumped from wells near North Saskatchewan river, 1 mile distant, to reservoir, thence pumped to pressure tank; two 25 h.p. and two 40 h.p. electric motors used; pumping units are in duplicate. **Reservoir**: 1, of 100,000 gal. capacity. **Distribution**: 2½ miles of C. I. mains; 23 hydrants; 6 services, other consumers temporarily supplied through water carts. **Pressure**: ordinary, 60 lbs; fire, 85 lbs. **Financial**: cost of supply plant, \$15,000; cost of distribution system, \$30,000; annual revenue from consumers, \$400; from public uses, \$1,250. **Rates**: flat rate not definitely set. Officer in charge: R. Potter, Town Engineer.

**BIGGAR**, (1,400). In operation since 1913; owned by municipality. **Supply**: pumped from wells, 1,000 ft. distant, to reservoir and directly into mains; gasoline engines used, maximum, 12 h.p., average 6 h.p. **Reservoir**: 1, 20 ft. × 20 ft. deep. **Distribution**: 3 miles of C. I. mains, 4 in. to 8 in.; 16 hydrants; 50 services, iron pipe. **Pressure**: ordinary, 27 lbs., fire, 75 lbs. **Financial**: cost of supply plant, \$4,000; cost of distribution system, \$40,000; annual maintenance, \$2,500; interest \$3,500; revenue, \$900. **Rates**: flat rate, \$12 per dwelling. Officer in charge: B. Robinson, Town Engineer.

**CANORA**, (1,400). Owned by municipality. **Supply**: by gravity from Crystal lake, 14½ miles distant. **Distribution**: 14½ miles of 12 in. wooden mains. **Financial**: total estimated cost of plant, \$236,000. Officer in charge: H. M. Sutherland, Secretary-treasurer.

**CARLYLE**, (600). In operation since 1911; owned by municipality. **Supply**: pumped from wells to tank and mains; steam power used, 30 h.p.; pumping apparatus in duplicate. **Reservoirs**: 2, of 12,000 and 50,000 gal. capacity, respectively. **Distribution**: 1½ miles of 6 in. C. I. mains, 10 hydrants; 12 services, ½ in. pipe. **Pressure**: ordinary, 40

lbs; fire, 80 lbs. **Consumption:** 20,000 gal. **Financial:** total cost of plant, \$22,000; annual maintenance, \$1,200; revenue from consumers, \$1,200; from public uses, \$1,000. **Rates:** flat rate, \$12 and upward per dwelling; bath-room, \$10. Officer in charge: W. Marriott.

**RAVEN**, (132). In operation since 1900; owned by municipality. **Supply:** by gravity from spring, 400 ft. distant. **Distribution:**  $\frac{1}{2}$  mile of 1 in. iron pipe supplying a public tap from which consumers obtain their water. **Financial:** total cost, \$500; annual maintenance, \$25.

**ESTEVAN**, (750). In operation since 1910; owned by municipality. **Supply:** pumped from Souris river,  $1\frac{1}{2}$  miles distant and a well, to stand-pipe; electric power and gasoline engine used, average, 25 h. p.; maximum, 50 h.p.; pumps are in duplicate. **Reservoir:** stand-pipe of 100,000 gal. capacity. **Purification:** mechanical filtration. **Distribution:**  $5\frac{1}{2}$  miles of C. I. mains, 6 in. to 10 in.; 45 hydrants; 150 services, lead and galv. iron pipes. **Pressure:** ordinary, 40 lbs; fire, 80 to 125 lbs. **Consumption:** 60,000 gal. **Financial:** cost of supply plant, \$60,000; cost of distribution system, \$60,000; annual maintenance, \$1,000; interest and sinking fund, \$10,000; revenue from consumers, \$1,000; from public uses, \$3,500. **Rates:** meter rate, 12c. to 30c. per 1,000 gal. Officer in charge: H. V. Armstrong, Town Engineer.

**FRANCIS**, (400). In operation since 1909; owned by municipality. **Supply:** by gravity from springs,  $2\frac{1}{2}$  miles distant. **Distribution:**  $2\frac{1}{2}$  miles of 6 in. wooden and iron mains; 7 hydrants; 75 services. **Pressure:** 10 lbs. **Financial:** total cost of plant, \$23,000; annual maintenance, \$285; interest, \$1,265; revenue, \$2,363. **Rates:** flat rate, \$6 per dwelling.

**INDIAN HEAD**, (1,650). In operation since 1906; owned by municipality. **Supply:** by gravity from springs, 9 miles distant. **Distribution:**  $13\frac{1}{2}$  miles of wooden and C. I. mains, 4 in. to 12 in.; 46 hydrants; 232 services;  $\frac{1}{2}$  in. to 1 in. lead pipe. **Pressure:** ordinary, 75 lbs; fire, 150 lbs. **Financial:** cost of supply plant, \$68,340; cost of distribution system, \$49,300; annual maintenance, \$2,000; interest, \$6,468; revenue from consumers, \$6,940; from public uses, \$1,800. **Rates:** flat rate, \$12 and upward per dwelling; cattle \$3 per head. Officer in charge: J. Bell.

**KINDERSLEY**, (1,300). In operation since 1913; owned by municipality. **Supply:** pumped from Motherwell lake,  $\frac{3}{4}$  mile distant, to elevated tank; steam power used, average, 6 h. p. **Reservoir:** elevated tank of 100,000

## WATER-WORKS OF SASKATCHEWAN

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gal. capacity. **Purification:** pressure filters used. **Distribution:** 2½ miles of steel mains, 4 in. to 10 in.; 26 hydrants, 58 services, ½ in. to 1 in. galv. iron pipe. **Pressure:** ordinary, 55 lbs; fire, 140 lbs. **Consumption:** 45,000 gal. **Financial:** total cost of plant, \$90,000; annual maintenance, \$5,644; interest, \$5,400. **Rates:** flat rate, \$18 per dwelling; meter rate, 96c. to \$1.20 per 1,000 gal. Officer in charge: D. MacTavish, Secretary-treasurer.

**MAPLE CREEK**, (1,700). In operation since 1907; owned by municipality. **Supply:** by gravity from springs (Saunders), 8 miles distant. **Reservoirs:** 2, of 70,000 gal. and 200,000 gal. capacity, respectively. **Distribution:** 11 miles of wooden and galv. iron mains, 1½ in. to 12 in.; 30 hydrants; 310 services, ½ in. and 1 in. galv. iron pipe. **Pressure:** ordinary, 60 lbs; fire, 110 lbs. **Consumption:** 250,000 gal. **Financial:** total cost of plant, \$78,000; annual maintenance, \$3,500; interest, \$3,900; revenue, \$9,000. **Rates:** flat rate, \$15 and upward per dwelling; meter rate, 30c. per 1,000 gal. Officer in charge: D. Paterson, Secretary-treasurer.

**MELFORT**, (500). In operation since 1913; owned by municipality. **Supply:** pumped from springs, 1½ miles distant, to reservoir and mains; electric power used, 30 h.p.; pumps are in duplicate. **Reservoir:** 1, of 100,000 gal. capacity. **Distribution:** 3 miles of steel mains, 4 in. to 8 in.; 30 hydrants; 32 services, ½ in. galv. iron pipe. **Pressure:** ordinary 50 lbs; fire, 95 lbs. **Financial:** total cost of plant, \$93,302; annual maintenance, \$1,844; revenue, \$482. **Rates:** flat rate, \$18 per dwelling. Officer in charge: D. McLauchlan, Superintendent.

**MELVILLE**, (3,000). In operation since 1912; owned by municipality. **Supply:** pumped from wells to tanks or directly into mains; electric power used, 85 h.p. **Reservoirs:** 2 tanks of 100,000 gal. capacity. **Distribution:** 2 miles of C. I. mains, 4 ... to 8 in.; 26 hydrants; 40 services (installation not completed); iron pipe. **Pressure:** ordinary, 68 lbs; fire, 96 lbs. **Financial:** total cost of plant, \$76,000; annual maintenance, \$806; interest, \$4,275; revenue from consumers, \$572; from public uses, \$1,200. **Rates:** flat rate, \$15 per dwelling. Officer in charge: W. J. Lay.

**MONTMARTRE**, (500). Owned by municipality. **Supply:** from C. N. R. system supplying the Company's water tank, water is pumped from springs, 2 miles distant; 25 h.p. gasoline engine used. **Distribution:** only one consumer is connected, the remainder of the population being supplied by water cart.

**MOOSE JAW, (15,000).** In operation since 1905; owned by municipality.

**Supply:** pumped from infiltration galleries on Sandy creek, 23 miles distant, to reservoir, thence by gravity and pumped to elevated tank; two 50 h.p. oil engines and electric power used; auxiliary water supply from Snowdy springs, 8 miles distant, and from infiltration galleries in city. **Reservoirs:** 1, of 45,000,000 gal., 1, of 500,000 gal., 2, of 1,000,000 gal. each, 1, of 290,000 gal., and an elevated tank of 100,000 gal. capacity. **Distribution:** 68 miles of steel, C. I. and wooden mains, 4 in. to 18 in.; 303 hydrants; 2,375 services,  $\frac{1}{2}$  in. to 1 in. lead and 2 in. galv. iron pipe. **Pressure:** ordinary, 65 lbs; fire, 140 lbs. **Consumption:** 725,000 gal. **Financial:** cost of supply plant, \$817,000; cost of distribution system, \$536,000; annual maintenance, \$63,442; interest and depreciation, \$63,891; revenue from consumers, \$47,964; from public uses, \$12,442. **Rates:** meter rate, 16c. to 40c. per 1,000 gal.

**HIGH PRESSURE SYSTEM:** the city also has a high pressure system, installed in 1912, covering the business portion. The water is pumped from a 21,000,000 gal. reservoir created by a dam across Moose Jaw creek; a steam turbine-driven centrifugal pump having a capacity of 2,000 gal. per minute is used. The distribution system comprises 4½ miles of high pressure mains, to which there are connected 68 hydrants. The pressure is 260 lbs. Officer in charge: G. D. Mackie, City Engineer.

**MOOSOMIN, (1,500).** In operation since 1907; owned by municipality.

**Supply:** pumped from well to stand-pipe; gasolene engines used, maximum, 50 h.p., average, 10 h.p. **Reservoir:** stand-pipe, 100,000 gal. capacity, 80 ft. high. **Distribution:** 1 mile of iron mains, 6 in.; 16 hydrants; 9 services. **Pressure:** ordinary, 37 lbs.; fire, 125 lbs. **Financial:** total cost of plant, \$30,000. **Rates:** flat rate, \$12 and upward per dwelling. Officer in charge: G. S. Page, Secretary-treasurer.

**NORTH BATTLEFORD, (2,525).** In operation since 1910; owned by municipality. **Supply:** pumped from wells on bank of North Saskatchewan river, 1½ miles distant, to stand-pipe; electric power and gasolene engine used, average, 38 h.p.; pumping apparatus in duplicate. **Reservoir:** 1, of 350,000 gal. capacity. **Distribution:** 10 miles of C. I. and steel mains, 4 in. to 12 in.; 151 hydrants; 505 services, galv. iron and lead pipe. **Pressure:** ordinary, 60 lbs.; fire, 125 lbs. **Consumption:** 100,000 gal. **Financial:** cost of supply plant, \$10,000; cost of distribution system, \$170,000; annual maintenance, \$3,500; interest, \$9,000; revenue, \$15,000. **Rates:** meter rate, average, 64c. per 1,000 gal. Officer in charge: J. B. Stirling, City Engineer.

**OUTLOOK**, (1,200). In operation since 1910; owned by municipality. **Supply**: pumped from South Saskatchewan river,  $\frac{1}{2}$  mile distant, to pressure tank; 50 h.p. gasoline engine used. **Reservoir**: 1, of 18,000 gal. capacity. **Distribution**: 2 miles of C. I. mains; 8 hydrants; 22 services, balance of population being served through water cart. **Pressure**: ordinary, 40 to 50 lbs; fire, 100 lbs. **Financial**: cost of supply plant, \$10,500; cost of distribution system, \$18,000; annual revenue, \$3,000. **Rates**: meter rate, \$1.00 per 1,000 gal. Officer in charge: J. H. Wilson, Superintendent.

**PRINCE ALBERT**, (15,000). In operation since 1907; owned by municipality. **Supply**: pumped from North Saskatchewan river, 200 ft. distant, to sedimentation basin, thence to stand-pipe; steam and electric power used, 50 h.p. **Filter**: 600,000 gal. mechanical filter. **Reservoirs**: sedimentation basin, 1,000,000 gal. capacity; stand-pipe, 160,000 gal. capacity. **Distribution**: 24 miles of C. I. mains, 4 in. to 10 in.; 161 hydrants; 701 services,  $\frac{1}{2}$  in. lead pipe. **Pressure**: ordinary 80 lbs.; fire, 150 lbs. **Consumption**: 600,000 gal. **Financial**: cost of supply plant, \$69,000; cost of distribution system, \$268,000; annual maintenance, \$19,700; revenue from consumers, \$19,000; from public uses, \$9,750; from frontage assessment, \$8,450. **Rates**: flat rate, \$10 and upward per dwelling; meter rate, 8c. to 32c. per 1,000 gal. Officer in charge: A. Smith, City Engineer.

**REGINA**, (50,000). In operation since 1905; owned by municipality. **Supply**: pumped from Boggy Creek springs,  $8\frac{1}{2}$  miles distant, to local reservoir and by gravity to city reservoirs, thence pumped directly into mains; 2 oil engines used at Boggy creek, average 40 h.p., maximum, 160 h.p.; steam power used in city, average 30 h.p., pumps in duplicate. **Reservoirs**: 1 at creek, of 100,000,000 gal. capacity; 1 of 5,000,000 gal.; 2 basins, about half-way to pump house, of 65,000 gal. and 1,000,000 gal. capacity, respectively; 2 reservoirs of 650,000 gal. total capacity, at city pump house. **Distribution**: 55 miles of wooden, C. I. and steel mains, 6 in. to 24 in.; 430 hydrants; 5,000 services,  $\frac{1}{2}$  in. lead pipe. **Pressure**: ordinary, 40 lbs.; fire, 110 lbs. **Consumption**: 2,000,000 gal. **Financial**: cost of supply plant, \$650,000; cost of distribution system, \$670,000; annual maintenance, \$51,671; revenue from consumers, \$95,162; from public uses, \$27,153; **Rates**: meter rate, 6c. to 25c. per 1,000 gal.; flat rate, \$9 and upward per dwelling, according to number of rooms; bath-room, \$7.50. Officer in charge: J. M. McKay, Superintendent.

**ROULEAU**, (700). In operation since 1912; owned by municipality. **Supply**: pumped from wells in town to reservoir; gas producer power

used, 14 h.p. **Reservoir**: 1, of 450,000 gal. capacity. **Distribution**: 3½ miles of 6 in. steel mains; 21 hydrants; 100 services, galv. iron pipe. **Pressure**: ordinary, 70 lbs.; fire, 100 lbs. **Consumption**: 20,000 gal. **Financial**: total cost of plant, \$45,000; annual maintenance, \$2,400; revenue, \$2,409. **Rates**: meter rate, \$1.60 to \$3.20 per 1,000 gal. Officer in charge: K. C. Crook, Superintendent.

**SASKATOON**, (30,000). In operation since 1906; owned by municipality. **Supply**: pumped from South Saskatchewan river, 1½ miles distant, through a purification plant, to mains; electric power used, average, 250 h.p.; steam auxiliary plant. **Reservoir**: 2 stand-pipes of 160,000 gal. and 165,000 gal. capacity, respectively. **Purification**: sedimentation basin and mechanical filtration. **Distribution**: 43½ miles of C. I. mains, 4 in. to 24 in.; 452 hydrants; 3,000 services, galv. iron and lead pipes. **Pressure**: ordinary, 60 lbs.; fire, 110 to 125 lbs. **Consumption**: 1,875,000 gal. **Financial**: cost of supply plant, \$281,574; cost of distribution system, \$1,003,342; annual maintenance, \$97,376; interest and sinking fund, \$23,134; revenue from consumers, \$106,484; from public uses, \$18,139. **Rates**: meter rate, 16c. to 40c. per 1,000 gal. Officer in charge: G. D. Archibald, City Engineer.

**SCOTT**, (500). In operation since 1913; owned by municipality. **Supply**: pumped from springs, ½ mile distant, to reservoir and tanks; electric power used, 25 h.p.; motors and pumps are in duplicate. **Reservoirs**: 3, of 11,000 gal., 33,000 gal., and 45,000 gal. capacity, respectively. **Distribution**: 5 miles of steel mains, 4 in. to 8 in.; 15 hydrants; 35 services. **Pressure**: ordinary, 60 lbs.; fire, 100 lbs. **Consumption**: 20,000 gal. **Financial**: total cost of plant, \$60,000. **Rates**: meter rate, \$1.60 per 1,000 gal. Officer in charge: W. C. Ross.

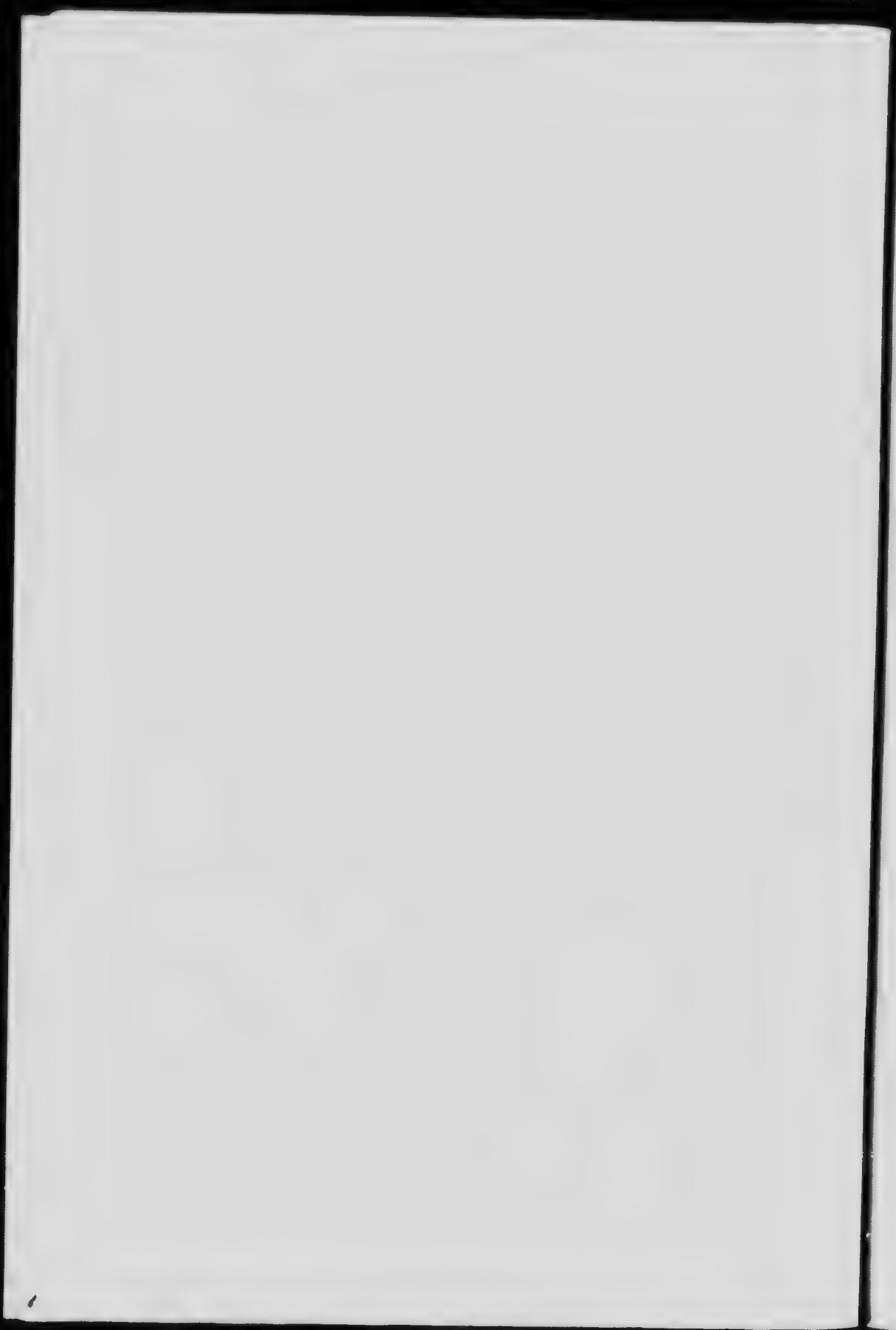
**SWIFT CURRENT**, (2,500). In operation since 1911; owned by municipality. **Supply**: pumped from Swift Current creek, 500 yds. distant, directly into mains; gas engines used, average, 65 h.p.; maximum, 75 h.p.; engines and pumps in duplicate. **Reservoir**: impounding reservoir of 88,000,000 gal. capacity. **Purification**: settling tank used. **Distribution**: 12½ miles of steel mains, 6 in. to 10 in.; 80 hydrants; 276 services, ½ in. to 2 in. galv. iron pipe. **Pressure**: ordinary, 75 lbs.; fire, 100 to 120 lbs. **Consumption**: 101,000 gal. **Financial**: cost of supply plant, \$20,000; cost of distribution system, \$122,000; annual maintenance, \$12,859; interest, \$6,902; revenue from consumers, \$5,993; from public uses, \$792. **Rates**: meter rate, 25c. to 35c. per 1,000 gal. Officer in charge: W. Curlee, City Engineer.



Victoria Water-works -Middle Sooke Lake



Water-works -5,000,000 gal. Storage Reservoir under Construction



**TANTALLON**, (125). In operation since 1908, owned by municipality. **Supply:** by gravity from spring,  $\frac{1}{2}$  mile distant. **Reservoir:** 1 at spring of 65,000 gal. capacity. **Distribution:** 1 mile of wooden and iron mains, 3 in. and 1 in., 12 services, 1 in. to 1 in. galv. iron pipe. **Pressure:** 62 lbs. **Financial:** total cost of plant, \$1,900; annual revenue, \$115. **Rates:** flat rate, \$7.00 per dwelling.

**WATROUS**. Owned by municipality. **Supply:** pumped from springs, 6 miles distant, to stand-pipe, oil engine used. **Distribution:**  $\frac{1}{2}$  miles of C. I. mains, 6 in. and 8 in.

**WEYBURN**, (5,400). In operation since 1911, owned by municipality. **Supply:** pumped from wells in gravel bed, 1½ miles distant, to stand pipe; electric power used, average, 64 h.p., maximum, 95 h.p.; gasoline auxiliary plant at one of the wells and duplicate pumps at each well. **Reservoir:** stand-pipe of 157,000 gal. capacity. **Distribution:** 9 miles of C. I. mains, 4 in. to 8 in., 88 hydrants, 300 services, galv. iron pipe. **Pressure:** ordinary, 60 lbs.; fire, 110 lbs. **Financial:** cost of supply plant, \$110,000; cost of distribution system, \$90,000; annual maintenance, \$10,000; interest, \$10,000; revenue, \$10,000. **Rates:** meter rate, 24c. to 64c. per 1,000 gal. Officer in charge: N. Murray, City Engineer.

**WILKIE**, (1,600). Owned by municipality. **Supply:** pumped from well,  $\frac{1}{2}$  mile distant, to reservoir; electric power used, 35 h.p. **Reservoir:** 1, of 54,000 gal. capacity. **Distribution:** 2½ miles of W. I. mains, 4 in. to 8 in.; 19 hydrants. **Pressure:** ordinary, 30 lbs.; fire, 80 lbs. **Financial:** cost of supply plant, \$26,000; cost of distribution system, \$24,000. **Rates:** meter rate. Officer in charge: T. A. Dinsley, Secretary-treasurer.

**YELLOW GRASS**, (600). In operation since 1908; owned by municipality. **Supply:** pumped from well, 1 mile distant, to reservoir; 25 h.p. gasoline engine used. **Reservoir:** 1, 14 ft.  $\times$  20 ft. **Distribution:** 1½ miles of 4 in. iron mains; 11 hydrants; 70 services, ½ in. pipe. **Pressure:** ordinary, 50 lbs.; fire, 85 lbs. **Financial:** total cost of plant, \$28,000; annual maintenance, \$750; revenue, \$840. **Rates:** flat rate, \$12 per dwelling. Officer in charge: H. C. Weythe, Engineer.

**YORKTON**, (5,000). In operation since 1906; owned by municipality. **Supply:** pumped from wells directly into mains and to compressed air tanks; electric power and gasoline engines used, 32 h.p.; pumping apparatus in duplicate. **Reservoirs:** 2 compressed air tanks of 16,000

gal. capacity each, and 2 concrete reservoirs of 13,500 gal. capacity each. **Distribution:** 9 miles of C. I. mains, 4 in. to 8 in.; 72 hydrants; 320 services,  $\frac{1}{2}$  in. galv. iron pipe. **Pressure:** ordinary, 40 to 60 lbs.; fire, 100 lbs. **Finan. stat:** Total cost of plant, \$137,500; annual maintenance, \$4,000; interest, 86.96%; revenue, \$10,000. **Rates:** meter rate, 8¢ per 1,000 gal. Officer in charge: H. Talbot-Crombie, Town Eng. inst.

capacity  
hydrants;  
60 lbs.,  
1 main-  
meter  
Town

## ALBERTA

**ATHABASCA**, (2,000). In operation since 1914; owned by municipality. **Supply**: pumped from Athabasca river,  $\frac{1}{2}$  mile distant, to reservoir; steam power used, maximum, 100 h.p. **Filter**: proposed mechanical filtration. **Reservoir**: 1, of 100,000 gal. capacity. **Distribution**: 4 miles of steel and C. I. mains, 4 in. to 8 in.; 24 hydrants. **Pressure**: 112 lbs. **Officer in charge**: C. L. Huff, Town Engineer.

**BANFF**, (800). In operation since 1907; owned by Dominion Government. **Supply**: by gravity from Forty-mile creek,  $2\frac{1}{2}$  miles distant. **Distribution**: 10 $\frac{1}{2}$  miles of wooden and C. I. mains, 6 in. to 12 in.; 77 hydrants; 300 services, lead and galv. iron pipes. **Pressure**: ordinary, 85 lbs., fire, 115 lbs. **Financial**: cost of supply plant, \$100,000; cost of distribution system, \$30,000; annual maintenance, \$6,000; revenue, \$6,000. **Rates**: flat rate, 5c. per foot of usage and based on number of rooms and equipment. **Officer in charge**: J. T. Child, Resident Engineer.

**BANKHEAD**, (1,000). In operation since 1905; owned by Bankhead Mines, Ltd. **Supply**: by gravity from a lake in summer and pumped to a tank from Cascade river in winter; steam power used, 25 h.p.; pumps in duplicate. **Reservoir**: tank of 7,900 gal. capacity. **Distribution**: 3 miles of C. I. and wooden mains, 2 in. to 12 in.; 21 hydrants, 120 services,  $\frac{1}{2}$  in. iron pipe. **Pressure**: 75 to 130 lbs. **Consumption**: 250,000 gal. **Financial**: total cost of plant, \$35,639; annual maintenance, \$500. **Rates**: no charges for water. **Officer in charge**: D. G. Wilson, Mine Superintendent.

**BASSANO**, (1,000). In operation since 1913; owned by municipality. **Supply**: pumped from Bow river,  $3\frac{1}{2}$  miles distant, to stand-pipe; steam power used, maximum, 250 h.p., average, 125 h.p. **Reservoir**: stand-pipe of 200,000 gal. capacity. **Distribution**: 5 $\frac{1}{2}$  miles of steel mains, 6 in. to 10 in.; 16 hydrants; 50 services,  $\frac{1}{2}$  in. to 2 in. iron pipes. **Pressure**: ordinary, 80 lbs.; fire, 90 lbs. **Consumption**: 40,500 gal. **Financial**: cost of supply plant, \$100,000; cost of distribution, \$30,000; annual maintenance, \$4,500; interest, \$7,800; revenue from 1,000 consumers, \$7,000; from public uses, \$1,000. **Rates**: meter gal. **Officer in charge**: G. W. Murgatroyd, Town Engineer.

**BELLEVUE**, (1,200). Owned by West Canadian Collieries Co. Ltd. **Supply**: by gravity from Connelly creek, 1 mile distant. **Distribution**: 5 miles of wooden and galv. iron mains, 1 in. to 6 in.; 100 hydrants; 100 services.

services,  $\frac{1}{2}$  in. galv. iron pipe. **Pressure:** 65 lbs. **Financial:** annual revenue, \$1,275. **Rates:** flat rate, \$18 per dwelling. Officer in charge: W. P. Williams, Mine Superintendent.

**BLAIRMORE**, (2,200). In operation since 1912; owned by municipality. **Supply:** by gravity from York creek, 1 $\frac{1}{2}$  miles distant. **Distribution:** 4 $\frac{1}{2}$  miles of wooden mains, 4 in. to 12 in.; 38 hydrants; 218 services, galv. iron pipe. **Pressure:** ordinary, 80 lbs.; fire, 95 lbs. **Financial:** total cost of plant, \$55,000; annual maintenance, \$1,428; interest, \$2,512; revenue from consumers, \$4,285; from public uses, \$1,330. **Rates:** flat rate, \$15 and upward per dwelling, bath-room, \$6. Officer in charge: R. M. Brisco.

**CALGARY**, (75,000). In operation since 1891; owned by municipality. **Supply:** by gravity from Elbow river, 14 miles distant, and pumped from Bow river, just above city, directly into mains; electric power used, average, 450 h.p., maximum, 1,350 h.p.; motors and pumps in duplicate. **Reservoir:** 1, of 20,000,000 gal. capacity. **Purification:** water from Bow river treated with hypochlorite of lime. **Distribution:** 184 miles of C. I. and steel mains, 6 in. to 30 in. 1,002 hydrants; 12,000 services, galv. iron and lead pipes. **Pressure:** ordinary, 75 lbs; fire, 100 to 120 lbs. **Consumption:** 12,000,000 gal. **Financial:** total cost of plant, \$3,098,000; annual maintenance, \$106,502; interest, \$106,418; revenue, \$318,900. **Rates:** flat rate, \$8 and upward per dwelling, based on number of rooms; bath-room, \$3; meter rate, 6c. to 22c. per 1,000 gal. Officer in charge: A. W. E. Fawkes.

**CAMROSE**, (2,100). In operation since 1911; owned by municipality. **Supply:** pumped from wells to surface reservoir and thence to elevated tank; steam power used, maximum, 100 h.p. **Reservoirs:** 2, of 100,000 gal. and 500,000 gal. capacity, respectively. **Distribution:** 2 $\frac{1}{2}$  miles of C. I. mains, 6 in. and 8 in.; 28 hydrants; 95 services,  $\frac{1}{2}$  in. lead and galv. iron pipes, balance of population supplied by water carts. **Pressure:** ordinary, 75 lbs; fire, 130 lbs. **Consumption:** 37,500 gal. **Financial:** total cost of plant, \$30,000; annual maintenance, \$5,030; interest and sinking fund, \$4,837; revenue from consumers, \$5,200; from public uses, \$2,080. **Rates:** meter rate 19c. to \$1.20 per 1,000 gal. Officer in charge: S. Appleton, Commissioner.

**CARDSTON**, (1,000). In operation since 1906; owned by municipality. **Supply:** by gravity from Lee creek, 6 miles distant, with auxiliary pumping from same creek; steam power used, 75 h.p.; boilers in duplicate. **Reservoir:** 1, of 20,000 gal. capacity. **Distribution:** 11 miles of

wooden mains, 4 in. to 10 in.; 33 hydrants; 158 services,  $\frac{1}{2}$  in. galv. iron pipe. **Pressure:** ordinary, 90 lbs; fire, 100 lbs. **Financial:** total cost of plant, \$82,000; annual maintenance, \$400; interest, \$4,200; annual revenue from consumers, \$4,500. **Rates:** flat rate, \$18 and upward per dwelling, bath-room, \$5.40; meter rate, 9c. to  $22\frac{1}{2}$ c. per 1,000 gal. Officer in charge: A. Longstaff, Superintendent.

**CARMANGAY**, (400). In operation since 1912; owned by municipality. **Supply:** pumped from Little Bow river, 300 yds. distant, to stand-pipe; steam power used, maximum, 25 h.p., average, 15 h.p. **Filter:** gravel filter used. **Reservoir:** stand-pipe of 40,000 gal. capacity. **Distribution:**  $\frac{1}{2}$  mile of 8 in. wooden mains; 5 hydrants; 11 services, 4 in. pipe. **Pressure:** ordinary, 25 lbs.; fire, 85 lbs. **Financial:** cost of supply plant, \$18,000; cost of distribution system, \$6,000; annual maintenance, \$3,000; interest, \$1,500; revenue, \$1,200. **Rates:** 15c. per barrel; flat rate, \$24 per tap. Officer in charge: L. Collin.

**CLARESHOLM**, (1,000). In operation since 1910; owned by municipality. **Supply:** pumped from Willow creek, 6 miles distant, to stand-pipe; electric power used, maximum, 60 h.p., average, 50 h.p. **Reservoir:** stand-pipe of 100,000 gal. capacity. **Filter:** water drawn through gravel bed, 150 ft. from river. **Distribution:** 10 miles of wooden and iron mains, 4 in. to 8 in.; 29 hydrants; 100 services, galv. iron pipe. **Pressure:** ordinary, 35 lbs; fire, 65 lbs. to 100 lbs. **Consumption:** 40,000 gal. **Financial:** cost of supply plant, \$56,000; cost of distribution system, \$17,000; revenue from consumers, \$3,500; from public uses, \$1,500. **Rates:** flat rate, \$12 to \$24 per dwelling; meter, 8c. per 1,000 gal.

**COLEMAN**, (2,000). In operation since 1906; owned by International Coal and Coke Co., Ltd. **Supply:** by gravity from Nez Percé creek,  $\frac{3}{4}$  mile distant; pumping station supplied from Oldman river for emergencies. **Reservoir:** 1, of 1,000,000 gal. capacity. **Distribution:** 4 miles of wooden mains, 2 in. to 10 in.; 7 hydrants; 180 services,  $\frac{3}{4}$  in. galv. iron pipe. **Pressure:** 135 lbs. **Consumption:** 300,000 gal. **Financial:** annual maintenance, \$1,000; revenue, \$3,700. **Rates:** flat rate, \$18 per tap. Officer in charge: O. E. S. Whiteside, General Manager.

**CORONATION**, (500). In operation since 1914; owned by municipality. **Supply:** pumped from well,  $\frac{1}{4}$  mile distant, to elevated tank; steam power used, 150 h.p. **Reservoir:** 1, of 200,000 gal. capacity. **Distribution:** 1 mile of steel mains, 6 in. and 8 in.; 12 hydrants.

**Pressure:** ordinary, 60 lbs; fire, 120 lbs. **Consumption:** 10,000 gal. **Financial:** total cost of plant, \$40,000; annual revenue, \$1,560. **Rates:** flat rate, \$18 per dwelling. Officer in charge: W. D. Guthrie, Secretary-treasurer.

**EDMONTON**, (60,000). In operation since 1902; owned by municipality. **Supply:** pumped from North Saskatchewan river, 2 miles distant, through purification plant, directly into mains; steam and electric power used, 500 to 700 h.p.; pumps and boilers are in duplicate. **Reservoirs:** sedimentation basin of 1,000,000 gal. capacity, and another reservoir of 500,000 gal. capacity. **Purification:** sedimentation and mechanical filtration. **Distribution:** 130 miles of C. I., steel, and wooden mains, 4 in. to 30 in.; 648 hydrants; 9,000 services, lead, galv. iron, and C. I. pipes. **Pressure:** ordinary, 45 to 80 lbs.; fire, 85 to 125 lbs. **Consumption:** 4,750,000 gal. **Financial:** cost of supply plant, \$501,159; cost of distribution system, \$1,575,167; annual maintenance, \$62,346; interest, \$109,338; revenue from consumers, \$294,251; from public uses, \$34,332. **Rates:** flat rate, \$8 and upward per dwelling; bathroom, \$8; meter rate, 16c. to 40c. per 1,000 gal.; all subject to 5 per cent discount. Officer in charge: J. W. Turner, Superintendent.

**EXSHAW**, (600). In operation since 1906; owned by Canada Cement Co. **Supply:** by gravity from small creek,  $\frac{1}{2}$  mile distant. **Distribution:** 2 miles of mains; 6 hydrants; 20 services. **Rates:** no charge made for water. Officer in charge: A. G. Beck, Superintendent.

**FRANK**, (500). In operation since 1904; owned by the Franco-Canadian Collieries, Ltd. **Supply:** by gravity from Gold creek,  $\frac{1}{2}$  mile distant. **Distribution:** 2½ miles of wooden mains, 3 in. to 8 in.; 10 hydrants; 200 services, 1½ in. pipe. **Pressure:** 60 lbs. **Financial:** total cost of plant, \$15,000; annual maintenance, \$600; revenue from consumers, \$4,800; from public uses, \$720. **Rates:** flat rate, \$12 and upward per dwelling.

**GLEICHEN**, (200). In operation since 1912; owned by municipality. **Supply:** pumped from well to tank; steam power used, maximum, 105 h.p.; average, 35 h.p. **Reservoir:** 1, of 50,000 gal. capacity. **Distribution:**  $\frac{1}{2}$  mile of C. I. mains, 6 in. to 10 in.; 6 hydrants; 9 services, galv. iron pipe. **Pressure:** ordinary, 40 lbs.; fire, 110 lbs. **Financial:** cost of supply plant, \$27,300; cost of distribution system, \$6,500; annual maintenance, \$2,529; interest, \$1,751; revenue, \$1,600. **Rates:** flat rate, \$18 per dwelling; meter rate, \$1.28 per 1,000 gal. Officer in charge: J. J. Emmerick, Engineer.

**HIGH RIVER, (500).** In operation since 1913; owned by municipality. **Supply:** pumped from Highwood river, through gravel  $\frac{1}{2}$  mile distant, to stand-pipe; steam power used. **Reservoir:** stand-pipe of 137,000 gal. capacity. **Distribution:** 1 $\frac{1}{2}$  miles of C. I. mains, 6 in. to 10 in.; 31 hydrants; 43 services,  $\frac{1}{2}$  in. pipe. **Pressure:** ordinary, 40 lbs.; fire, 120 lbs. **Rates:** meter rate, 20c. to 60c. per 1,000 gal.; flat rate, \$16 and upward per dwelling. Officer in charge: G. E. Mack, Secretary-treasurer.

**JASPER (200).** In operation since 1912; owned by Grand Trunk Pacific Ry. **Supply:** by gravity from Cabin lake, 2 miles distant. Principally used for railroad purposes. There are 2 house services, balance of population supplied by water carts.

**LETHBRIDGE, (11,500).** In operation since 1904; owned by municipality. **Supply:** pumped from Belly river, 1 mile distant, to 3 stand-pipes or directly into mains; steam and electric power used, maximum, 350 h.p.; average, 200 h.p.; pumps in duplicate. **Filter:** intake crib protected with sand and gravel. **Reservoirs:** 3 stand-pipes of 109,000 gal., 156,000 gal. and 470,000 gal. capacity, respectively. **Distribution:** 40 $\frac{1}{2}$  miles of wooden, C. I., and steel mains, 4 in. to 18 in.; 239 hydrants; 2,300 services, lead and iron pipe. **Pressure:** ordinary, 42 lbs.; fire, 85 to 100 lbs. **Consumption:** 1,422,000 gal. **Financial:** cost of supply plant, \$142,500; cost of distribution system, \$283,000; annual maintenance, \$9,079; interest, \$21,586; revenue from consumers, \$56,929; from public uses, \$11,000. **Rates:** meter rate, 15c. to 60c. per 1,000 gal., flat rate, \$12 and upward per dwelling. Officer in charge: W. A. Adam, Engineer.

**MACLEOD, (2,500).** In operation since 1907; owned by municipality. **Supply:** pumped from Oldman river,  $\frac{1}{2}$  mile distant, to stand-pipe; steam power used, maximum, 75 h.p.; average, 40 h.p.; pumping machinery in duplicate. **Filter:** mechanical filtration used. **Reservoir:** 1 stand-pipe of 100,000 gal. capacity. **Distribution:** 9 miles of C. I., steel, and wooden mains, 4 in. to 12 in.; 62 hydrants; 400 services, lead and galv. iron pipes. **Pressure:** ordinary, 45 lbs.; fire, 100 lbs. **Consumption:** 500,000 gal. **Financial:** cost of supply plant, \$27,883; cost of filtration plant, \$65,000; cost of distribution system, \$105,254; annual maintenance, \$5,597; interest and sinking fund, \$10,858; revenue from consumers, \$9,000; from public uses, \$2,000. **Rates:** flat rate, \$20 for first tap; bath-room, \$5; meter rate, 12 $\frac{1}{2}$ c. to 30c. per 1,000 gal. Officer in charge: C. H. Aitham, Town Engineer.

**MEDICINE HAT**, (12,000). In operation since 1900; owned by municipality. **Supply**: pumped from South Saskatchewan river,  $2\frac{1}{2}$  miles distant, to reservoir and mains; electric power used, average, 400 h.p.; maximum, 510 h.p.; pumps are in duplicate. **Reservoir**: 1, of 2,320,000 gal. capacity. **Purification**: mechanical filter. **Distribution**: 38 miles of steel, C. I., and wooden mains, 6 in. to 20 in.; 250 hydrants; 2,400 services,  $\frac{1}{2}$  in. galv. iron pipe. **Pressure**: ordinary, 75 lbs.; fire, 110 lbs. **Consumption**: 2,300,000 gal. **Financial**: cost of supply plant, \$325,000; cost of distribution system, \$450,000; annual maintenance, \$23,828; interest, \$38,238; revenue from consumers, \$50,000; from public uses, \$17,000. **Rates**: flat rate, \$12 and upward per dwelling; bath-room, \$6; meter rate, 16c. to 40c. per 1,000 gal. Officer in charge: A. K. Grimmer, City Engineer.

**MIRROR**. In operation since 1913; owned by G. T. P. Ry. System used only for railway purposes and for fire protection in village. **Supply**: pumped from Buffalo lake,  $1\frac{1}{2}$  miles distant, to tank; oil engine used, 15 to 20 h.p. **Reservoir**: 1, of 40,000 gal. capacity. **Distribution**:  $1\frac{1}{2}$  miles of 6 in. C. I. and W. I. mains; 2 hydrants. **Pressure**: 80 lbs. **Financial**: total cost of plant, \$20,780.

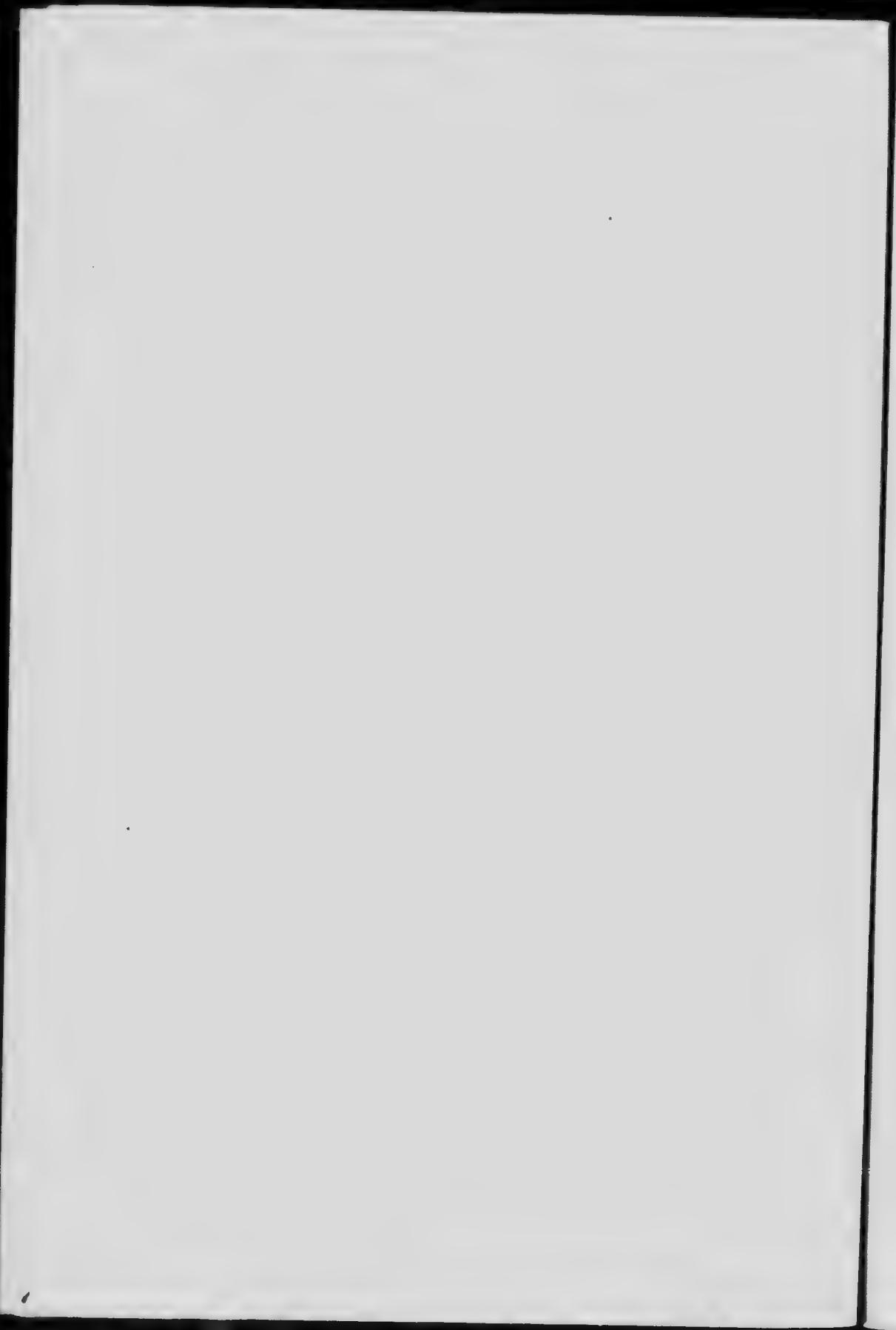
**PINCER**, (100). In operation since 1910; owned by municipality. **Supply**: pumped from springs,  $\frac{1}{2}$  mile distant, to tank, 4 h.p. gasolene engine used. **Reservoir**: 1, of 11,200 gal. capacity. **Distribution**:  $\frac{1}{2}$  mile of wooden and galv. iron mains, 1 in. and 4 in.; 3 hydrants. **Pressure**: 60 lbs. **Financial**: cost of supply plant, \$1,900; cost of distribution system, \$2,800; annual maintenance, \$900.

**PINCER CREEK**, (1,000). In operation since 1906; owned by Municipal Water and Light Co., Ltd. **Supply**: by gravity from Pincher creek, 2 miles distant. **Purification**: water passes through gravel bank of creek. **Reservoir**: 1, 30 ft. diameter, 12 ft. deep. **Distribution**: wooden mains; 24 hydrants; 170 services,  $\frac{1}{2}$  in. galv. iron pipe. **Pressure**: 65 lbs. **Consumption**: 90,000 gal. **Financial**: total cost of plant, \$48,000; annual maintenance, \$1,200; revenue from consumers, \$4,000; from public uses, \$480. **Rates**: flat rate, \$15 per dwelling and according to number of rooms.

**RAYMOND**, (1,800). In operation since 1911; owned by municipality. **Supply**: by gravity from springs and well, 2 miles distant, and pumped to tank or mains; gasolene engines used, maximum, 11 h.p.; average, 5 h.p.; engines and pump in duplicate. **Distribution**: 10 miles of wooden and galv. iron mains, 4 in. to 10 in.; 4 hydrants; 212 services,



Toronto Water-works - Pumping Station



1 in. galv. iron and lead pipe. **Pressure:** 45 lbs. **Financial:** cost of supply plant, \$3,700; cost of distribution system, \$58,000; annual maintenance, \$3,806; revenue, \$3,450. **Rates:** meter rate; flat rate, \$16.20 per dwelling. Officer in charge: R. Powell, Superintendent.

**REDCLIFF**, (3,000). In operation since 1913; owned by municipality. **Supply:** pumped from South Saskatchewan river, 1½ miles distant, to tank; 60 h.p. gas engine used; pumps are in duplicate. **Reservoir:** tank of 300,000 gal. capacity. **Purification:** water passes through 2,000 ft. of gravel. **Distribution:** 14½ miles of wooden and steel mains; 33 hydrants; 320 services, galv. iron and lead pipe. **Pressure:** 45 lbs. **Consumption:** 90,000 gal. **Financial:** cost of supply plant, \$20,000; cost of distribution system, \$113,000; annual revenue, \$8,000. **Rates:** flat rate; meter rate for industrial purposes, 5c. per 1,000 gal. Officer in charge: J. E. Askwith, Town Engineer.

**RED DEER**, (3,500). In operation since 1906; owned by municipality. **Supply:** by gravity from Red Deer river, 300 yds. distant, to 2 wells, thence pumped directly into mains; steam power used. **Purification:** wells have filter walls of cinders. **Distribution:** 7 miles of C. I., wooden and steel mains, 6 in. to 10 in.; 35 hydrants; 305 services, galv. iron and lead pipe. **Pressure:** ordinary, 35 lbs.; fire, 120 lbs. **Financial:** total cost of plant, \$92,941; annual revenue, \$4,423. **Rates:** flat rate, \$6.50 and upward per dwelling. Officer in charge: A. T. Stephenson, Commissioner.

**STETTLER**, (250). In operation since 1910; owned by municipality. **Supply:** pumped from well, 800 ft. distant to reservoir and elevated tank, steam power used. **Reservoir:** 1, of 50,000 gal. capacity. **Distribution:** ½ mile of C. I. mains, 8 in. and 10 in.; 10 hydrants; 20 services, galv. iron pipe. **Pressure:** ordinary, 56 lbs.; fire, 120 lbs. **Financial:** cost of supply plant, \$19,000; cost of distribution system, \$15,000; annual maintenance, \$2,500; interest, \$1,000; revenue from consumers, \$1,074; from public uses, \$636. **Rates:** flat rate, \$18 and upward per dwelling; meter rate, 48c. to \$1.20 per 1,000 gal.

**TABER**, (3,000). In operation since 1910; owned by municipality. **Supply:** pumped from Belly river, 2 miles distant, to tank; steam power used. **Distribution:** 6 miles of C. I. mains, 6 in. to 10 in.; 45 hydrants; 217 services, ½ in. galv. iron pipe. **Pressure:** ordinary, 40 lbs.; fire, 70 lbs. **Financial:** total cost of plant, \$63,000. **Rates:** flat rate. Officer in charge: W. Faulds.

**TOFIELD.** For fire protection only; in operation since 1913. **Supply:** pumped from wells directly into mains; steam power used, 60 h.p. **Distribution:**  $\frac{1}{2}$  mile of steel mains, 6 in. and 8 in.; 7 hydrants. **Pressure:** fire, 140 lbs. **Financial:** total cost of plant, \$20,000; annual maintenance, \$2,500. **Officer in charge:** J. W. McMullen, Secretary-treasurer.

**VEGREVILLE.** In operation since 1914; owned by municipality. **Supply:** pumped from drilled wells, 1 mile distant, to elevated tank; steam power used. **Reservoirs:** 1, of 200,000 gal. capacity, and elevated tank of 60,000 gal. capacity. **Distribution:** 2 miles of steel mains, 6 in. and 8 in.; 10 hydrants; galv. iron services, not all installed. **Pressure:** ordinary, 45 lbs.; fire, 125 lbs. **Financial:** cost of supply plant, \$20,000; cost of distribution system, \$35,000; interest, \$4,795. **Rates:** meter rate to be used. **Officer in charge:** J. St. Peter.

**WETASKIWIN, (3,500).** In operation since 1910; owned by municipality. **Supply:** pumped from wells, 2,500 ft. distant to elevated tank; gas engine used. **Reservoir:** 1, of 175,000 gal. capacity. **Distribution:**  $5\frac{1}{2}$  miles of C. I. mains, 6 in. to 10 in.; 48 hydrants; 50 services, lead and galv. iron pipes. **Pressure:** ordinary, 70 lbs.; fire, 100 lbs. to 110 lbs. **Financial:** cost of supply plant, \$30,000; cost of distribution system, \$80,000. **Rates:** meter rate.

## BRITISH COLUMBIA

**ARMSTRONG**, (1,500). In operation since 1902; owned by municipality. Supply: by gravity from Davis creek, 2½ miles distant. Reservoir: 1, of 50,000 gal. capacity. Distribution: 20 miles of wooden mains, 2 in. to 10 in.; 10 hydrants; 350 services, ½ in. iron pipe. Pressure: ordinary, 135 lbs.; fire, 100 lbs. Consumption: 360,000 gal. Financial cost of distribution system, \$40,000; annual maintenance, \$1,800; interest and sinking fund, \$3,032; revenue, \$5,300. Rates: flat rate, \$15 for first tap. Officer in charge: T. Lawson, Superintendent.

**ARROWHEAD**, (175). In operation since 1906; owned by Arrowhead Water Supply Co. Supply: by gravity from mountain streams, 1½ miles distant. Reservoir: 1, of 6,400 gal. capacity. Distribution: 1½ miles of wooden mains, 2 in. to 6 in.; 5 hydrants; 34 services, ½ in. galv. iron pipe. Pressure: 120 lbs. Financial: total cost of plant, \$7,500; annual revenue, \$900. Rates: \$24 per dwelling.

**CHASE**, (600). In operation since 1907; owned by Adams River Lumber Co., Ltd. Supply: by gravity from Chase creek, ½ mile distant. Distribution: 2 miles of 8 in. wooden mains; 14 hydrants; 135 services, ½ in. pipe. Pressure: 90 lbs. Financial: cost of supply plant, \$12,358; cost of distribution system, \$3,595; revenue, \$1,600. Rates: flat rate, \$12 per dwelling.

**CHEMAINUS**, (250). Owned by Victoria Lumber & Mfg. Co., Ltd. Supply: by gravity from North Fork Chemainus river, 3 miles distant. Distribution: 3 miles of wooden mains, 10 in. and 12 in.; 24 hydrants. Pressure: 65 lbs. Rates: flat rate, \$12 per dwelling.

**CHILLIWACK**, (4,500). In operation since 1906; owned by Elk Creek Water-Works Co. Supply: by gravity from Elk creek, 9 miles distant. Reservoir: 1, of 1,500,000 gal. capacity. Distribution: 66½ miles of wooden mains, 2 in. to 12 in.; 35 hydrants; 925 services, ½ in. and ¾ in. pipe. Pressure: ordinary, 75 lbs.; fire, 65 lbs. Consumption: 300,000 gal. Financial: cost of distribution system, \$160,000; revenue from consumers, \$16,000; from public uses, \$2,000. Rates: flat rate, \$12 per dwelling. Officer in charge: E. H. Kipp, Superintendent.

**CLAYBURN**, (400). In operation since 1905; owned by Clayburn Company Ltd. Supply: by gravity from springs, ½ mile distant, and pumped

to reservoir and mains; electric power used, 5 h.p. **Distribution:**  $\frac{1}{2}$  mile of wooden and iron mains, 2 in. to 6 in.; 4 hydrants; 38 services. **Pressure:** ordinary, 30 lbs.; fire, 70 lbs. **Financial:** cost of supply plant, \$2,000; cost of distribution system, \$1,000. **Rates:** no charges; consumers are company's employees.

**CRANBROOK**, (4,000). In operation since 1903; owned by municipality. **Supply:** by gravity from St. Josephs creek,  $2\frac{1}{2}$  miles distant. **Distribution:** 11 miles of wooden mains, 4 in. to 18 in.; 35 hydrants; 800 services, galv. iron pipe. **Pressure:** 65 lbs. **Financial:** annual maintenance, \$7,000; interest, \$3,500; revenue, \$20,000. **Rates:** meter rate, 4c. to 40c. per 1,000 gal.; flat rate, \$18 and upward per dwelling, based on number of rooms; bath-room, \$9. Officer in charge: F. O'Hara, City Engineer.

**CRESTON**, (500). In operation since 1908; owned by Goat Mountain Water-Works Co., Ltd. **Supply:** by gravity from springs on Goat mountain,  $2\frac{1}{2}$  miles distant. **Reservoirs:** 2, of 41,000 gal. and 8,400 gal. capacity, respectively. **Distribution:** 4 miles of 4 in. wooden mains; 3 hydrants; 106 services,  $\frac{1}{2}$  in. and  $\frac{3}{4}$  in. galv. iron pipe. **Pressure:** ordinary, 100 lbs.; fire, 95 lbs. to 120 lbs. **Consumption:** 37,000 gal. **Financial:** cost of supply plant, \$5,000; cost of distribution system, \$4,000; annual maintenance, \$700; revenue, \$1,900. **Rates:** flat rate, \$18 and upward per dwelling, based on number of rooms.

**CUMBERLAND**, (2,500). In operation since 1896; owned by Cumberland and Union W. W. Co. **Supply:** by gravity from Hamilton and Stevens lakes and Hamilton creek, 2 miles to  $2\frac{1}{2}$  miles distant. **Reservoirs:** 3, of 2,340 acre-feet, 3,444 acre-feet, and 288 acre-feet, respectively. **Distribution:**  $2\frac{1}{2}$  miles of iron mains, 4 in. to 8 in.; 16 hydrants; 765 services,  $\frac{1}{2}$  in. galv. iron pipe. **Pressure:** ordinary, 160 lbs.; fire, 175 lbs. **Financial:** cost of supply plant, \$44,500; cost of distribution system, \$26,000; annual maintenance, \$2,020; revenue from consumers, \$1,269; from public uses, \$320. **Rates:** flat rate, \$15 per dwelling.

**DUNCAN**, (1,700). In operation since 1905; owned by municipality. **Supply:** by gravity from Skinner creek,  $2\frac{1}{2}$  miles distant, directly into mains. **Reservoirs:** 2, of 1,000,000 gal. and 750,000 gal. capacity, respectively. **Distribution:** 7 miles of wooden mains, 4 in. to 8 in.; 13 hydrants; 350 services, iron pipe. **Pressure:** 60 lbs. **Financial:** total cost of plant, \$25,000; annual maintenance, \$1,200; interest and sinking fund, \$2,100; revenue, \$5,300; **Rates:** flat rate, \$12 and upward per dwelling. Officer in charge: R. G. Harvey, Superintendent.

**ELKO, (300).** In operation since 1913; owned by Elko Water, Light & Power Co., Ltd. **Supply:** by gravity from Silver Springs lake, 2 miles distant. **Distribution:** 2 miles of wooden mains, 10 in. to 14 in.; 9 hydrants; 38 services,  $\frac{1}{2}$  in. and  $\frac{3}{4}$  in. pipe. **Pressure:** 92 lbs. **Consumption:** 20,000 gal. **Financial:** total cost of plant, \$22,650; annual maintenance, \$500; revenue, \$1,335. **Rates:** flat rate, \$24 per dwelling.

**ENDERBY, (1,000).** In operation since 1906; owned by municipality. **Supply:** by gravity from Brush Creek springs,  $4\frac{1}{2}$  miles distant, with auxiliary steam pumps at sawmill to pump river water in case of fire. **Distribution:** 10 miles of wooden mains, 4 in. to 8 in.; 15 hydrants; 225 services, galv. iron pipe. **Pressure:** ordinary, 80 lbs. to 113 lbs.; fire, pressure can be increased by pumps at sawmill. **Financial:** total cost of plant, \$29,500; annual maintenance, \$659; interest, \$1,400; revenue, \$3,619. **Rates:** flat rate, \$18 per dwelling. Officer in charge: E. J. Mack, Alderman.

**ESQUIMALT,** owned by Esquimalt Water-Works Co., Victoria. Supplies water to Esquimalt peninsula and the municipalities of Oak Bay and Saanich and Victoria West district. **Supply:** by gravity from Goldstream lakes. **Reservoirs:** 5, with a total capacity of 3,476,000,000 gal. **Distribution:**  $10\frac{1}{2}$  miles of 31 in. mains; 57 hydrants; 2,200 services, galv. iron and lead pipe. **Pressure:** 91 lbs. **Consumption:** 700,000 gal. **Rates:** meter rate, 20c. and 30c. per 1,000 gal.

**FERNIE, (5,000).** In operation since 1909; owned by municipality. **Supply:** by gravity from Fairy creek, 3 miles distant. **Reservoirs:** 2, of 750,000 gal. and 60,000 gal. capacity, respectively. **Distribution:**  $12\frac{1}{2}$  miles of wooden and W. I. mains,  $1\frac{1}{2}$  in. to 12 in.; 51 hydrants; 700 services, galv. iron pipe. **Pressure:** 92 lbs. **Consumption:** 1,250,000 gal. **Financial:** cost of supply plant, \$35,000; cost of distribution system, \$84,000; annual maintenance, \$5,794; interest, \$5,950; revenue from consumers, \$7,100; from public uses, \$950. **Rates:** flat rate, \$18 and upward per dwelling; bath-room, \$9; meter rate, 4c. to 40c. per 1,000 gal. Officer in charge: W. Ramsay, City Engineer.

**FORT STEELE, (250).** In operation since 1913; owned by Fort Steele Water-Works Co., Ltd. **Supply:** by gravity from Myers springs,  $1\frac{1}{2}$  miles distant. **Reservoir:** 1, of 100,000 gal. capacity. **Distribution:** 2 miles of wooden and C. I. mains, 4 in. to 12 in.; 3 hydrants; 72 services,  $\frac{1}{2}$  in. galv. iron pipe. **Pressure:** 50 lbs. **Consumption:** 30,000

gal. **Financial:** total cost of plant, \$14,066; annual maintenance, \$920; revenue, \$2,160. **Rates:** flat rate, \$30 and upward per dwelling.

**GRAND FORKS**, (2,500). In operation since 1900; owned by municipality. **Supply:** pumped from Kettle river to a reservoir; electric power used, average, 85 h.p., maximum, 150 h.p., pumping apparatus in duplicate. **Reservoirs:** 2, of 500,000 gal. and 90,000 gal. capacity. **Purification:** gravel bed filter. **Distribution:** 15 miles of steel, galv. iron, and wooden mains, 2 in. to 12 in.; 52 hydrants; 500 services. **Pressure:** 120 lbs. **Consumption:** 350,000 gal. **Financial:** cost of supply plant, \$8,000; cost of distribution system, \$90,000; annual maintenance, \$6,750; interest, \$4,500; revenue, \$8,500. **Rates:** flat rate, \$12 per dwelling. Officer in charge: F. W. Reid, City Engineer.

**GREENWOOD**, (1,000). In operation since 1898; owned by municipality. **Supply:** by gravity from Lind, Twin and Providence creeks, 1 mile distant. **Reservoirs:** 3 reservoirs of 250,000 gal. capacity each. **Distribution:** 4½ miles of iron and wooden mains, 2 in. to 8 in.; 18 hydrants; 265 services, ½ in. to 2 in. galv. iron pipe. **Pressure:** 130 lbs. **Financial:** total cost of plant, \$57,000; annual maintenance, \$627; revenue from consumers, \$4,860; from public uses, \$1,380. **Rates:** flat rate, of \$12 to \$18 per dwelling; bath-room, \$6; meter rate, 16c. to 35c. per 1,000 gal.

**HOSMER**, (1,200). In operation since 1908; owned by Hosmer Mines, Ltd. **Supply:** by gravity from Hosmer creek, ½ mile distant. **Reservoir:** 1, of 60,000 gal. capacity. **Distribution:** 3½ miles of wooden mains, 4 in. to 10 in.; 23 hydrants; 103 services, 1 in. to 2 in. iron pipes. **Pressure:** 120 lbs. **Financial:** cost of supply plant, \$31,551; cost of distribution system, \$4,252; annual maintenance, \$763; revenue, \$3,990. **Rates:** flat rate, \$24 per dwelling; bath-room, \$9.

**KAMLOOPS**, (6,000). In operation since 1895; owned by municipality. **Supply:** pumped from Thompson river, 5,000 ft. distant, to reservoir and mains; electric power used, average, 225 h.p., maximum, 450 h. p.; steam auxiliary pumping plant. **Reservoirs:** 2, of 1,500,000 gal. and 150,000 gal. capacity. **Distribution:** 14 miles of C. I. and W. I. mains, 4 in. to 16 in.; 104 hydrants; 1,110 services, ½ in. galv. iron pipe. **Pressure:** ordinary, 125 lbs., fire, 125 to 145 lbs. **Consumption:** 1,200,000 gal. **Financial:** cost of supply plant, \$144,134; cost of distribution system, \$149,866; annual maintenance, \$29,525; interest, \$15,280; revenue from consumers, \$28,870; from public uses, \$5,368. **Rates:** flat rate, \$18 and upward per dwelling; meter rate,

20c. to 50c. per 1,000 gal. Officer in charge: C. L. Wash, Superintendent.

**KASLO, (1,100).** In operation since 1896, owned by municipality. **Supply:** by gravity from Kaslo creek, 3 miles distant. **Reservoir:** 2, of 10,000 gal., and 32,000 gal. capacity. **Distribution:** 3 miles of steel mains, 6 in. to 10 in.; 22 hydrants. **Pressure:** 72 lbs. **Consumption:** 28,000 gal. **Financial:** total cost of plant, \$32,000. **Rates:** flat rate. Officer in charge: R. A. Cockle, Water Commissioner.

**KELOWNA, (2,200).** In operation since 1908, owned by municipality. **Supply:** pumped from Okanagan lake,  $\frac{1}{2}$  mile distant, directly into mains; steam power used, average 20 h.p., maximum, 40 h.p.; pumps are in duplicate. **Distribution:** 13 miles of C. I. and wooden mains, 4 in. to 10 in., 33 hydrants; 509 services,  $\frac{1}{2}$  in. galv. iron pipe. **Pressure:** ordinary, 50 lbs.; fire, 125 lbs. **Financial:** cost of distribution system, \$51,000; annual maintenance, \$4,500; interest, \$3,000; revenue, \$9,328. **Rates:** flat rate, \$14.40 per dwelling; meter rate, 10c. to 30c. per 1,000 gal. Officer in charge: G. H. Dunn, City Clerk.

**LADYSMITH, (3,000).** In operation since 1904; owned by Ladysmith Water-Works Co. (G. & N. Ry.) **Supply:** by gravity from Stocking lake,  $\frac{3}{4}$  miles distant. **Reservoir:** 1, of 1,000,000 gal. capacity. **Distribution:** 17 miles of C. I. and wooden mains, 2 in. to 8 in.; 13 hydrants; 500 services,  $\frac{1}{2}$  in. pipe. **Pressure:** ordinary, 100 lbs.; fire, 150 lbs. **Financial:** cost of plant, \$60,000; annual revenue, \$5,000. **Rates:** flat rate, \$12 per dwelling.

**LILLOOET, (3,000).** In operation since 1903; owned by S. A. Macfarlane. **Supply:** by gravity from a mountain stream,  $\frac{1}{2}$  mile distant. **Reservoir:** 2; one creek, 100 ft. high, a running stream, and a settling tank of 3,600 gal. capacity. **Distribution:** 1 mile of W. I. mains, 3 in. and  $3\frac{1}{2}$  in.; 2 hydrants; 53 services,  $\frac{1}{2}$  in. pipe. **Pressure:** 117 to 130 lbs. **Financial:** total cost of plant, \$3,000; annual revenue, \$630. **Rates:** flat rate, \$12 per dwelling.

**LYTTON, (450).** In operation since 1911; owned by Lytton Water Supply Co., Ltd. **Supply:** from the C. P. Ry. main which is supplied by gravity from Lytton creek  $1\frac{1}{2}$  miles distant. **Distribution:**  $\frac{1}{2}$  mile of 4 in. wooden mains; 7 hydrants; 50 services,  $\frac{1}{2}$  in. and  $\frac{3}{4}$  in. iron pipe. **Pressure:** ordinary, 39 lbs; fire, 65 lbs. **Financial:** cost of distribution system, \$3,500; annual maintenance, \$350; revenue, \$900. **Rates:** flat rate, \$18 per dwelling.

**MERRITT**, (1,500). In operation since 1913; owned by municipality. **Supply**: pumped from wells, near Coldwater river,  $\frac{1}{2}$  mile distant, to mains and tank; steam and electric power used, average, 55 h.p.; maximum, 132 h.p.; pumps and boilers are in duplicate. **Reservoir**: tank of 52,000 gal. capacity. **Distribution**: 4½ miles of steel mains, 4 in. to 8 in.; 19 hydrants; 110 services, galv. iron pipe. **Pressure**: ordinary, 108 lbs.; fire, 90 lbs. **Consumption**: 150,000 gal. **Financial**: cost of supply plant, \$20,000; cost of distribution system, \$25,000; annual revenue, \$366. **Rates**: flat rate, \$18 per dwelling; meter rate, 28¢ per 1,000 gal. Officer in charge: A. S. Howes, Water Commissioner.

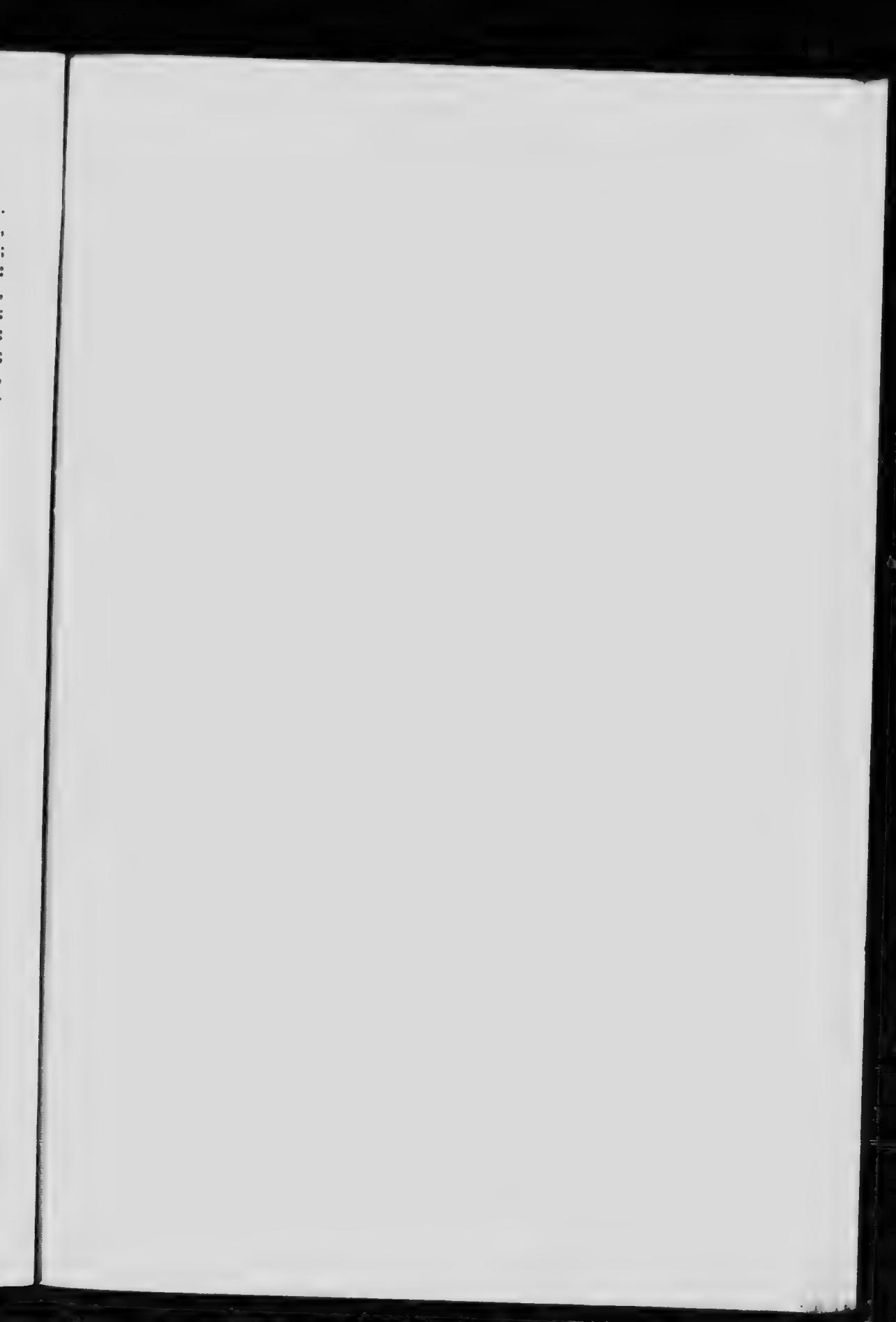
**MICHEL**. In operation since 1910; owned by Michel Water, Light and Power Co., Ltd. **Supply**: by gravity from Aqueduct creek, 1 mile distant. **Reservoir**: 1, of 60,000 gal. capacity. **Distribution**: 1½ miles of wooden mains, 8 in. and 10 in.; 6 hydrants; 92 services, ½ in. galv. iron pipe. **Pressure**: 96 lbs. **Consumption**: 24,000 gal. **Financial**: total cost of plant, \$15,000; annual maintenance, \$200; annual revenue, \$1,800. **Rates**: flat rate, \$18 for first tap. Officer in charge: G. B. Stedman, Secretary-treasurer.

**MISSION CITY**, (300). In operation since 1896; owned by Mission Water, Light & Power Co., Ltd. **Supply**: by gravity from Silver creek, 3 miles distant. **Reservoirs**: 3, of 150,000 gal. capacity each. **Distribution**: 10 miles of wooden and iron mains; 1 hydrant. **Pressure**: 80 lbs. **Consumption**: 15,000 gal. **Financial**: total cost of plant, \$85,000. **Rates**: flat and meter rates.

**MOYIE**, (250). In operation since 1900; owned by Moyie Water Co., Ltd. **Supply**: by gravity from a point 1,000 ft. distant. **Reservoir**: 1, of 1,800,000 gal. capacity. **Distribution**: ½ mile of iron mains, 2 in. to 6 in.; 9 hydrants; 30 services, ½ in. and ¾ in. pipe. **Pressure**: 90 lbs. **Financial**: total cost of plant, \$14,000; annual maintenance, \$300; revenue, \$983. **Rates**: flat rate, \$12 and upward per dwelling.

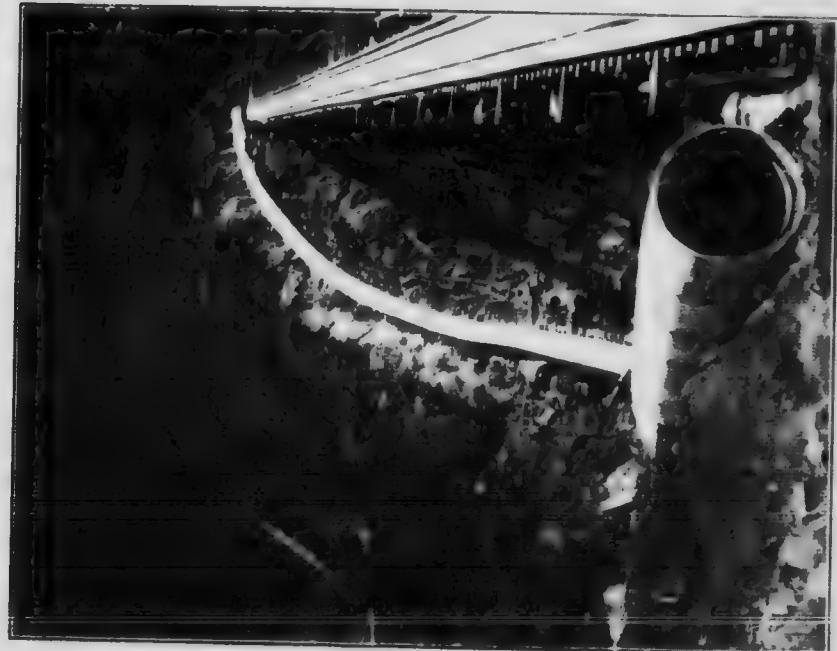
**NAKUSP**. There is a small water-works system supplying 22 services; water is taken from a spring and is only used for domestic purposes.

**NANAIMO**, (9,000). In operation since 1884; owned by municipality. **Supply**: by gravity from South Fork Nanaimo river, 15 miles distant. **Reservoirs**: 2; capacity, 27,000,000 gal. **Distribution**: 27 miles of C. I. and wooden mains, 3 in. to 18 in.; 72 hydrants; 1,930 services, galv. iron pipe. **Pressure**: 120 to 135 lbs. **Financial**: cost of supply





Brasilia Sewers - System Laving 18 inch x 32 inch Flat-top Concrete



Victoria Water-works - Portion of Pipe-line

plant, \$180,000; cost of distribution system, \$129,000; annual maintenance, \$6,000; interest, \$8,974; revenue, \$31,222. **Rates:** flat rate, \$12 and upward per dwelling, based on number of persons. meter rate, 4¢c. to 24¢c. per 1,000 gal. Officer in charge: J. H. Shepherd.

**NARAMATA**, (300). In operation since 1907; owned by Okanagan Trust Co., Ltd. **Supply:** by gravity from Robinson, Camp and Arrawana creeks, all within a distance of 2 miles. **Distribution:** 3½ miles of ditch, flume and mains; 2 hydrants; 50 domestic consumers and 130 irrigation consumers. **Pressure:** 200 lbs. **Financial:** total cost of plant, \$47,500; annual maintenance, \$500; revenue, \$3,500. **Rates:** flat rate, \$18 per dwelling.

**NELSON**, (7,500). In operation since 1897; owned by municipality. **Supply:** by gravity from Cottonwood and Anderson creeks, 1½ miles distant. **Reservoir:** 1 of 1,000,000 gal. capacity. **Distribution:** 17½ miles of steel mains, 1½ in. to 14 in.; 61 hydrants; 1,279 services, galv. iron pipe. **Pressure:** 100 lbs. **Consumption:** 1,000,000 gal. **Financial:** cost of distribution system, \$97,500; annual maintenance, \$2,500; interest, \$4,875; revenue, \$27,750. **Rates:** flat rate, \$12 and upward per dwelling. Officer in charge: G. C. Mackay, City Engineer.

**NEW WESTMINSTER**, (17,500). In operation since 1890; owned by municipality. **Supply:** by gravity from Coquitlam lake, 11 miles distant. **Reservoirs:** 3, of 500,000 gal., 1,400,000 gal. and 2,666,000 gal. capacity, respectively; 1, of 5,000,000 gal. under construction. **Distribution:** 98 miles of steel, C. I., and wooden mains, 3 in. to 25 in.; 165 hydrants; 4,000 services, galv. iron pipe. **Pressure:** ordinary, 95 lbs.; fire, 170 lbs. **Consumption:** 1,400,000 gal. **Financial:** annual cost of maintenance, \$20,000; interest, \$39,450; revenue, \$80,744. **Rates:** flat rate, \$12 and upward per dwelling; meter rate, 16¢c. to 40¢c. per 1,000 gal.; all subject to discounts of 20 to 30 per cent. Officer in charge: J. W. B. Blackman, City Engineer.

**NORTH VANCOUVER**, (10,000). In operation since 1905; owned by municipality. **Supply:** by gravity from Lynn creek, 4 miles distant. **Reservoir:** 1, of 125,000,000 gal. capacity. **Distribution:** 4½ miles of wooden, steel, and C. I., mains, 2 in. to 16 in.; 251 hydrants, 2,963 services, ½ in. and ¾ in. galv. iron pipe. **Pressure:** ordinary, 50 lbs. to 170 lbs.; fire, on special main, 267 lbs. **Consumption:** 1,000,000 gal. **Financial:** cost of distribution system, \$360,000; annual maintenance, \$5,000; revenue, \$23,000. **Rates:** flat rate, \$4 to \$9.60 per dwelling. Officer in charge: A. M. West, City Engineer.

**PEACHLAND, (150).** In operation since 1910; owned by municipality.

**Supply:** by gravity from Trepanier creek, 2 miles distant. **Distribution:** 3 miles of 4 in. wooden mains; 8 hydrants; 50 services,  $\frac{1}{2}$  in. galv. iron pipe. **Pressure:** ordinary, 95 lbs.; fire, 80 lbs. **Financial:** total cost of plant, \$10,500; annual maintenance, \$107; interest, \$525; revenue from consumers, \$582; from public uses, \$12. **Rates:** flat rate, \$12 per dwelling. **Officer in charge:** W. M. Dryden, Clerk.

**PENTICTON, (2,000).** In operation since 1912; owned by municipality.

**Supply:** by gravity from Penticton and Ellis creeks, 4 miles distant. **Distribution:** 20 miles of steel, C. I., and W. I. mains, 2 in. to 14 in.; 50 hydrants; 400 services,  $\frac{1}{2}$  in. to 4 in. pipe. **Pressure:** ordinary, 125 lbs.; fire, 125 to 175 lbs. **Consumption:** 50,000 gal. **Financial:** total cost of plant, \$167,000; annual revenue from consumers, \$6,000; from public uses, \$2,000. **Rates:** flat rate, \$13.50 and upward per dwelling; bath-room, \$7.20; meter rate, 15c. per 1,000 gal. **Officer in charge:** W. H. Murfitt, Superintendent.

**PHOENIX, (1,500).** In operation since 1901; owned by Phoenix Electric

Light Co. **Supply:** pumped from Marshall lake and springs, 1 mile distant, to reservoir; electric power used, 20 h.p. **Reservoirs:** 2; of 108,000 gal. and 107,000 gal. capacity, respectively. **Distribution:** 3½ miles of wooden mains, 2 in. to 8 in.; 22 hydrants; 110 services, galv. iron pipe. **Pressure:** ordinary, 102 lbs.; fire, 70 to 135 lbs. **Consumption:** 66,000 gal. **Financial:** total cost of plant, \$44,150; annual maintenance, \$2,715; revenue from consumers, \$2,230; from public uses, \$670. **Rates:** flat rate, \$16.20 per dwelling.

**POR ALBERNI, (1,200).** In operation since 1913; owned by municipality.

**Supply:** by gravity from China creek, 7 miles distant. **Distribution:** 14 miles of wooden and steel mains, 6 in. to 16 in.; 16 hydrants; 180 services,  $\frac{1}{2}$  in. to 2 in. galv. iron pipe. **Pressure:** 40 to 100 lbs. **Financial:** cost of supply plant, \$93,000; cost of distribution system, \$32,000; annual maintenance, \$2,000; interest, \$14,000; revenue from consumers, \$2,100; from public uses, \$200. **Rates:** flat rate, \$8 per dwelling, bath-room, \$8; meter rate, maximum of 28½c. per 1,000 gal. **Officer in charge:** W. McFarlane, Foreman.

**POR MOODY, (1,500).** Public water-works system proposed. At present, certain sections of the city are temporarily supplied by saw-mills. Water is also supplied by gravity from mountain streams,  $\frac{1}{2}$  mile to 1 mile distant. **Rates:** flat rate, \$12 per dwelling.

**PRINCE RUPERT**, (6,050). In operation since 1910; owned by municipality. **Supply**: pumped to reservoir from Shawatlans lake,  $4\frac{1}{2}$  miles distant, with a proposed extension to Woodworth lake, 4 miles farther, from which the water will come by gravity; steam power used, maximum 95 h.p.; auxiliary supplies from Hays creek where gasolene pumps are used and from a reservoir on mount Oldfield. **Reservoirs**: 3, of 500,000 gal., 1,250,000 gal. and Woodworth Lake dam of 750,000,000 cu. ft. capacity, respectively. **Distribution**: 18 miles of C. I., steel, and wooden mains, 2 in. to 18 in.; 70 hydrants; 1,350 services, galv. iron and lead pipes. **Pressure**: 78 lbs. **Consumption**: 500,000 gal. **Financial**: annual maintenance, \$18,000; revenue from consumers, \$18,500; from public uses, \$1,750. **Rates**: \$6 and upward per dwelling; bath-room, \$6; meter rate, up to 64c. per 1,000 gal. Officer in charge: W. McG. Mason, City Engineer.

**REVELSTOKE**, (4,000). In operation since 1896; owned by municipality. **Supply**: by gravity from Bridge creek,  $1\frac{1}{2}$  miles distant, and Greely creek, 5 miles distant. **Reservoirs**: 2 tanks, each of 75,000 gal. capacity. **Distribution**: 15 miles of iron and wooden mains, 4 in. to 12 in.; 48 hydrants; 700 services, galv. iron pipe. **Pressure**: 110 lbs. **Consumption**: 800,000 gal. **Financial**: cost of supply plant, \$40,000; cost of distribution system, \$85,000; annual maintenance, \$2,820; revenue, \$15,941. **Rates**: flat rate, \$18 per dwelling; bath-room, \$3. Officer in charge: A. F. Lundell, Superintendent.

**ROSSLAND**, (4,000). In operation since 1890; owned by municipality. **Supply**: by gravity from springs, 9 miles distant. **Reservoir**: 1, of 3,000,000 gal. **Distribution**: 9 miles of steel, C. I., and wooden mains, 4 in. to 14 in.; 36 hydrants; 800 services,  $\frac{1}{2}$  in. to 1 in. galv. iron pipe. **Pressure**: 80 to 215 lbs. **Financial**: total cost of plant, \$66,922; annual maintenance, \$3,334; revenue, \$14,900. **Rates**: flat rate, \$24 per dwelling; bath-room, \$12; meter rate, 45c. to 75c. per 1,000 gal. Officer in charge: C. Corbett.

**SALMON ARM**, (1,000). In operation since 1914; owned by municipality. **Supply**: by gravity from East Canoe creek, 4 miles distant. **Distribution**: 6 miles of wooden and iron mains, 4 in. to 10 in.; 32 hydrants; 100 services,  $\frac{1}{2}$  in. to 2 in. galv. iron pipe. **Pressure**: ordinary, 80 lbs.; fire, 140 lbs. **Financial**: total cost of plant, \$41,000; interest, \$2,700. **Rates**: flat rate, \$18 per dwelling. Officer in charge: W. J. Ball.

**SANDON**, (400). In operation since 1896; owned by Sandon Water-Works and Light Co. **Supply**: by gravity from mountain streams,

1 mile distant. **Reservoirs:** 3, 30,000 gal., 40,000 gal., and 90,000 gal., capacity, respectively. **Distribution:** 1½ miles of steel mains, 4 in. to 14 in.; 12 hydrants; 50 services. **Pressure:** 138 to 178 lbs. **Consumption:** 300,000 gal. **Financial:** cost of supply plant, \$30,000; cost of distribution system, \$20,000; annual maintenance, \$500; revenue from consumers, \$1,200; from public uses, \$600. **Rates:** flat rate, \$18 per dwelling.

**SUMMERLAND**, (2,500). In operation since 1910; owned by municipality.

**Supply:** by gravity from Trout creek, 3 miles distant, and from springs in municipality. **Reservoir:** 1, 13 acres in area. **Distribution:** 25 miles of wooden and galv. iron mains, 2 in. to 14 in.; 6 hydrants; 275 domestic services; 350 irrigation consumers. **Financial:** total cost, including irrigation system, \$275,000; annual maintenance, \$7,200; interest, \$13,750; revenue, \$21,580. **Rates:** flat rate, \$18 per dwelling.

**TERRACE**, (150). In operation since 1912; owned by G. Little. **Supply:** by gravity from springs, ½ mile distant. **Distribution:** ½ mile of galv. iron mains, ½ in. to 2 in. **Pressure:** 40 lbs. **Financial:** total cost of plant, \$900; annual maintenance, \$50.

**THREE VALLEY**, (50). Water supply system owned by Forest Mills of B. C., Ltd. **Supply:** by gravity from glacier, 2 miles distant. Water is supplied to houses owned by sawmill company.

**TRAIL**, (2,000). Owned by municipality. **Supply:** by gravity from Rock, Ryan, and Gorge creeks, ½ mile distant. **Reservoir:** 1, of 100,000 gal. capacity. **Distribution:** 4 miles of wooden and iron mains, 2 in. to 6 in.; 18 hydrants; 312 services, ½ in. galv. iron pipe. **Pressure:** 103 lbs. **Financial:** total cost of plant, \$15,000; annual maintenance, \$1,103; interest, \$765; revenue, \$6,731. **Rates:** flat rate, \$18 per dwelling; bath-room, \$12.

**TROUT LAKE**, (200). In operation since 1904; owned by Trout Lake Water Supply Co. **Supply:** by gravity from Baty creek, 1 mile distant. **Reservoir:** 1, 30 ft. × 30 ft. **Distribution:** 1½ mile of wooden mains, 4 in. to 8 in.; 4 hydrants; 47 services, ½ in. to 1 in. galv. iron pipe. **Pressure:** 95 lbs. **Financial:** total cost of plant, \$7,000; annual maintenance, \$10; revenue, \$320. **Rates:** flat rate, \$18 per dwelling.

**VANCOUVER**, (174,000, including 60,000 in adjacent municipalities). In operation since 1889; owned by municipality. **Supply:** by gravity

from Capilano river and Seymour creek, both 9 miles distant. **Reservoirs:** 2, of 10,000,000 gal. and 25,000,000 gal. capacity, respectively. **Purification:** settling tanks at intakes. **Distribution:** 298½ miles of steel and C. I. mains, 4 in. to 32 in.; 1,661 hydrants; 26,820 services, ½ in. galv. iron and lead pipes. **Pressure:** ordinary, 120 lbs; fire, 120 to 190 lbs. **Consumption:** 18,000,000 gal. **Financial:** total cost of plant, \$3,000,000; annual maintenance, \$60,000; interest and sinking fund, \$245,000; revenue, \$450,000. **Rates:** flat rate, \$6 per dwelling; bath-room, \$6; meter rate, 11½c. to 25½c per 1,000 gal. Officer in charge: F. L. Fellowes, City Engineer.

**VERNON**, (4,000). In operation since 1890; owned by municipality. **Supply:** by gravity from B. X. creek, 5 miles distant. **Reservoirs:** 2, of 5,000,000 gal. and 16,000,000 gal. capacity, respectively. **Distribution:** 28 miles of C. I., steel, and wooden mains, 4 in. to 14 in.; 87 hydrants; 800 services, ½ in. and ¾ in. galv. iron pipe. **Pressure:** ordinary, 140 lbs.; fire, at nozzle, 110 lbs. **Consumption:** 440,000 gal. **Financial:** total cost of plant, \$220,000; annual maintenance, \$5,000; interest, \$11,840; revenue from consumers, \$22,000; from public uses, \$2,000. **Rates:** flat rate, \$12 and upward per dwelling. Officer in charge: J. G. Knight, Superintendent.

**VICTORIA**, (55,000). In operation since 1875; owned by municipality, except Victoria West district which is supplied by Esquimalt Water-Works. **Supply:** by gravity from Sooke lake, 38 miles distant by flow line; old system from Elk lake for emergency. **Reservoir:** 1, of 16,000,000 gal. capacity and one stand-pipe of 100,000 gal.; reservoir on Sooke system, 136,000,000 gal. **Distribution:** 167 miles of C. I., steel and concrete mains, 4 in. to 40 in.; 824 hydrants; 9,250 services, ½ in. to 1 in. lead pipe. **Pressure:** ordinary, 30 to 90 lbs.; fire, 150 lbs. **Consumption:** 4,000,000 gal. **Financial:** total cost of plant, including Sooke supply, \$3,884,500; annual maintenance, \$196,000; interest, \$117,200; revenue from consumers, \$209,200; from public uses, \$29,260. **Rates:** all meter rate, 12½c. to 22½c. per 1,000 gal. Officer in charge: C. H. Rust, Water Commissioner.

**WALHACHIN**, (200). In operation since 1909; owned by Dry Belt Settlements Utilities, Ltd. **Supply:** by gravity from Jimmys creek, 3 miles distant. **Distribution:** 4 miles of 3 in. wooden mains; 50 services, ½ in. galv. iron pipe. **Pressure:** 150 lbs. **Financial:** total cost of plant, \$11,000; annual revenue, \$1,000. **Rates:** flat rate, \$18 per dwelling.

**WILMER**, (150). In operation since 1912; owned by Wilmer Water-works Co. **Supply**: pumped from well to elevated tank; gasoline engine used, 4 h.p. **Distribution**:  $\frac{1}{2}$  mile of 6 in. wooden mains; 30 services,  $\frac{1}{2}$  in. pipe. **Consumption**: 5,000 gal. **Financial**: cost of supply plant, \$1,000; cost of distribution system, \$2,000; annual maintenance, \$600; revenue, \$900. **Rates**: flat rate, \$36 and upward per dwelling.

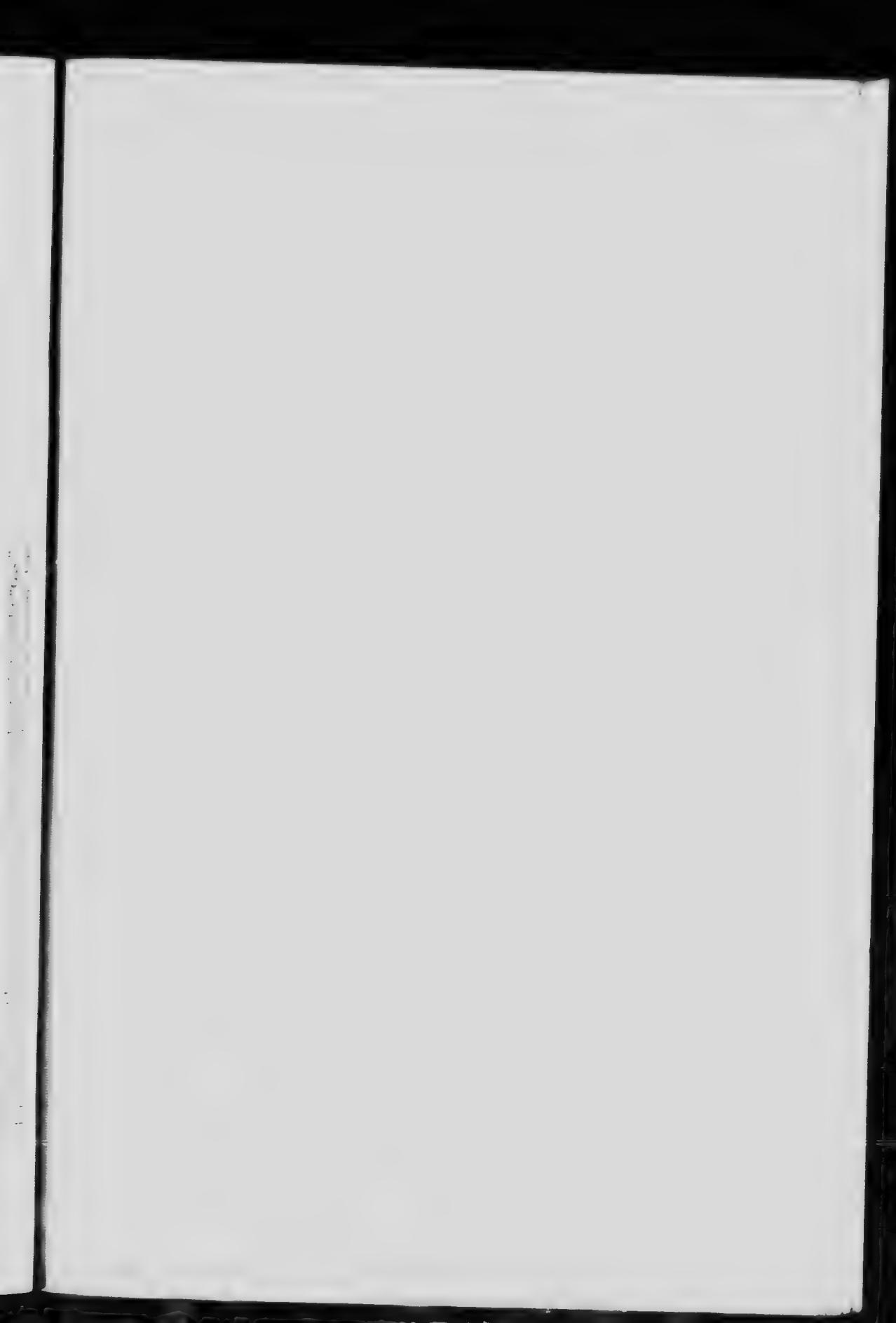
**TOTAL COST OF WATER-WORKS, MAINTENANCE CHARGES, CONSUMPTION, ETC., FOR THE DOMINION PROVINCES**

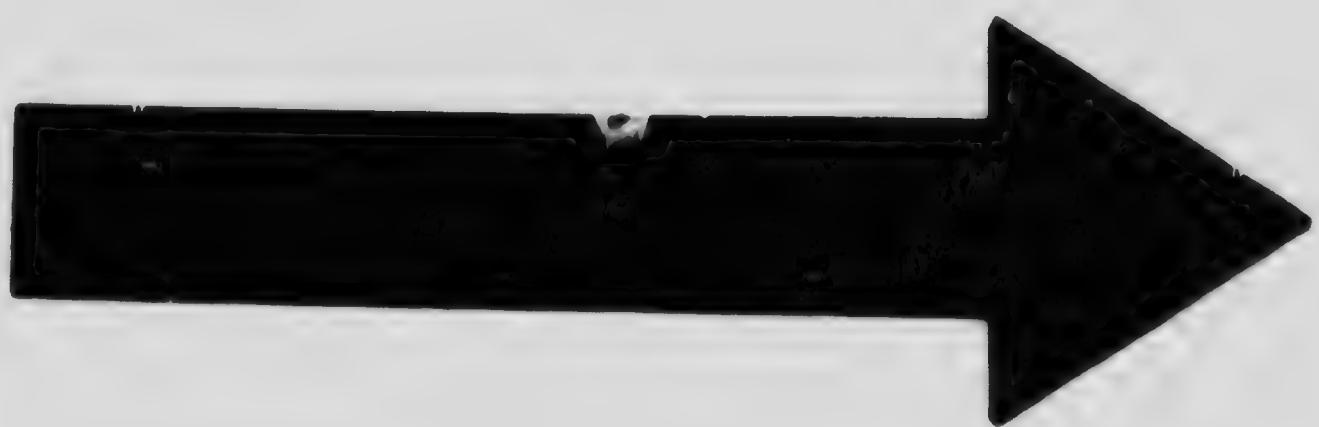
(In this compilation, the items, which it was impossible to obtain from the municipalities, have been estimated and included.)

PROVINCE	Cost of Plants (dollars)	Total Daily Consumption (imp. gal.)	Annual Maintenance Exclusive of Interest (dollars)	Total Length of Mains (miles)	Daily Consumption per Capita (imp. gal.)	Estimated Cost per Capita per Year (dollars)
Nova Scotia	5,046,375	23,450,000	186,178	431	127	8.1
Prince Edward Island	341,119	933,000	15,953	30	54	14.7
New Brunswick	3,920,429	14,580,000	214,491	213	143	9.5
Quebec	36,087,735	140,218,000	941,654	1,545	120	8.9
Ontario	44,506,739	169,554,000	1,821,205	2,643	116	10.1
Manitoba	8,378,491	10,740,000	486,414	389	50	33.8
Saskatchewan	6,339,258	7,866,000	296,702	327	55	32.4
Alberta	8,089,523	23,789,000	271,245	520	121	12.4
British Columbia	11,015,944	35,747,000	424,697	1,052	100	11.7
Canada	123,725,633	426,877,000	4,558,539	7,149	111	10.9

\* These costs are approximate only, and have been calculated from the annual maintenance costs, plus an allowance of 10 per cent of the cost of plants for interest and depreciation.

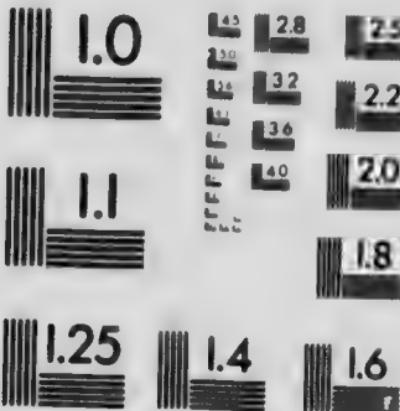
**NUMBER OF WATER-WORK PLANTS IN EACH PROVINCE, CLASSIFIED ACCORDING TO SOURCE OF SUPPLY, MODE OF SUPPLY, POWER USED, ETC.**





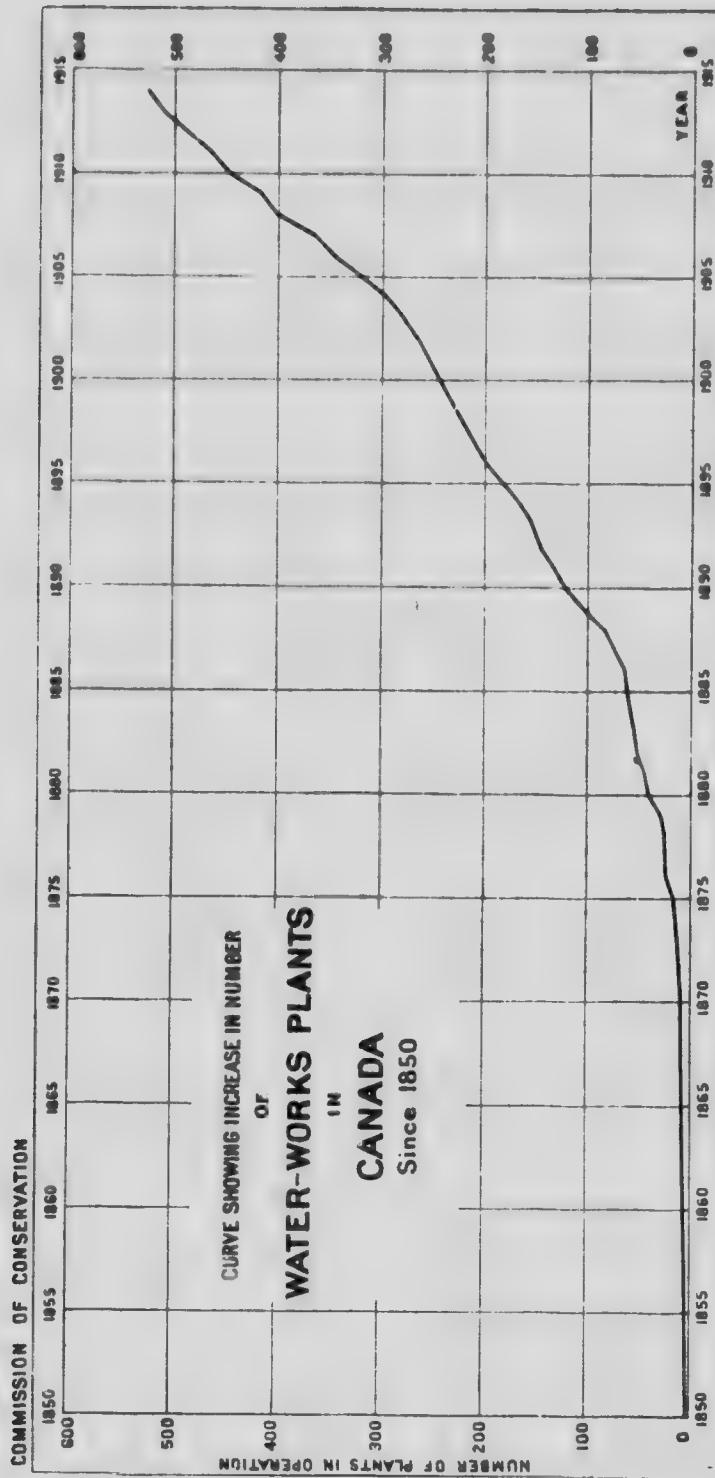
MICROCOPY RESOLUTION TEST CHART

(ANSI and ISO TEST CHART No. 2)



APPLIED IMAGE Inc.

1651 East Main Street  
Rochester, New York 14609 USA  
(716) 482-0300 Phone  
(716) 288-5989 Fax



NUMBER OF WATER-WORKS PLANTS IN CANADA AT THE BEGINNING OF EACH FIVE-YEAR PERIOD, 1850-1915

PROVINCE	WATER-WORKS OF CANADA													
	1850	1855	1860	1865	1870	1875	1880	1885	1890	1895	1900	1905	1910	1915
Nova Scotia.....	1	1	1	1	1	1	2	4	8	16	22	28	31	33
Prince Edward Island.....	..	..	..	..	..	..	..	..	1	1	1	2	3	3
New Brunswick.....	1	1	1	1	1	1	2	4	6	6	8	12	17	20
Quebec.....	..	2	2	2	2	5	10	23	37	58	85	105	152	177
Ontario.....	1	2	2	3	3	8	15	27	50	80	102	118	145	166
Manitoba.....	..	..	..	..	..	..	..	..	..	1	2	4	8	13
Saskatchewan.....	..	..	..	..	..	..	..	..	..	..	..	1	13	30
Alberta.....	..	..	..	..	..	..	..	..	..	..	..	..	..	..
British Columbia.....	..	..	..	..	..	..	..	..	1	2	3	5	14	22
Canada.....	3	4	6	7	7	15	30	60	105	168	235	297	419	528

## COMMISSION OF CONSERVATION

## RATES AND CONSUMPTION FOR CITIES AND TOWNS WITH A POPULATION OF 5,000 AND OVER

City or Town	Population Served	Consumption				Rates	
		Total (millions of gal.)	Per Capita (gal.)	Meter		Flat	
				Per 1,000 gal. (cents)	Per Dwelling (dollars)	Extra for Bath-room (dollars)	
<b>NOVA SCOTIA</b>							
Amherst.....	8,000	1.5	187	8	10		
Dartmouth.....	5,058			8 to 15	Assess., 4 and upward		
Glace Bay.....	17,000	1.5	88		6 to 13		
Halifax.....	53,000	9	170	5 to 14½	Assess., 22c. per \$100		
New Glasgow...	8,500	1.8	212	3 to 30	5 and upward		
Springhill.....	5,700	.45	79		6 per tap		
Sydney.....	22,000	2.03	92	8 to 20	5 for 1st tap		
Sydney Mines...	5,500	1	182		6 for 1st tap		
Truro.....	7,500	1	133	5 to 8	6		
Yarmouth.....	6,700	.87	121	20	7.50 to 21, based on no. of taps		
<b>PRINCE EDWARD I.</b>							
Charlottetown..	12,500	.86	68	30	6		
<b>NEW BRUNSWICK</b>							
Campbellton...	5,000	.25	50		8 for 1st tap		
Chatham.....	5,000	.56	112	Large consumers on meter	5 for 1st tap		
Fredericton....	7,771	.53	68		1 additional		
Moncton.....	13,000	1.5	115	10 to 25	5 for 1st tap		
St. John.....	48,000	10	208	10 to 25	10 to 20		
Hull.....	21,000	5	238	15	3	7	
<b>QUEBEC</b>							
Chicoutimi....	5,000				8		
Fraserville....	8,000	.8	100	7½ to 10	7 to 20		
Granby.....	5,000				6 to 10		
Grand'mère....	5,500				8 per tap		
Hull.....	21,000	5	238	15	Assess., ½ of one per cent and upward		
Joliette.....	7,900	1.5	190		5 and upward based on rental value		
Lachine.....	14,800	3	203	5 to 15	5 per cent of rental value		
Lévis.....	7,500	.7	93	Meter rate also	12½ per cent of rental value		
Longueuil.....	5,000	.45	90		8 to 15 per cent of rents		
Montreal Muni- 390,000	cipal System.	51	131	18½	4 per cent on rent—houses & business places; 10 per cent on rent—hotels & restaurants		

# WATER-WORKS OF CANADA

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## RATES AND CONSUMPTION FOR CITIES AND TOWNS WITH A POPULATION OF 5,000 AND OVER—(Continued)

City or Town	Population Served	Consumption		Rates		
		Total (millions of gal.)	Per capita (gal.)	Meter	Flat	
				Per 1,000 gal. (cents)	Per Dwelling (dollars)	Extra for Bath-room (dollars)
QUEBEC						
Montreal Water & Power Co.	264,000	30	114			Flat rate
Notre-Dame-de-Grace	3,500	1.6	291			
{ Quebec	90,000	14	136			Assessment basis
Limoilou	6,000	.4	67			
St. Hyacinthe	11,640	1.7	146			
St. Johns	6,400	.65	102	20 to 30		
St. Lambert	5,000	.31	61	15 to 27		
Shawinigan Falls	5,500	.7	127	3 to 75		
Sherbrooke	19,30	2.6	135			
Sorel	10,000			19		
Thetford Mines	8,000	.8	100			
Three Rivers	19,000	2.4	126	15		
Valleyfield	9,487	1.2	126	7		
Verdun	30,000	1.2	40			
ONTARIO						
Barrie	7,600	.22	29	17 to 26, less 20% discount	3.60 for 1st tap	4.77
Belleville	11,870	1.1	93	10 to 30		
Berlin	18,300	1.04	57	6 to 18	5 and upward	7
Brantford	24,500	3.15	129	8 to 20.8	4 per tap	
Brockville	10,100	2.68	266		1.50 to 4	5
Chatham	12,039	.95	79	7 to 17	3.80 and upward	3.80
Cobalt	5,500	.7	127	15 to 30		
Cobourg	5,000	.8	160	10 to 25	9	
Collingwood	7,800	.7	90		5 and upward	6.50
Cornwall	7,500	1.5	200	25	Based on no. of rooms	
Fort William	25,000	3.25	130	5 to 14	6 for 1st tap	6.50
Galt	10,400	1	96	11.2 to 28.8	8 to 14	6 to 10
Goderich	5,000	.5	100		3.75 and upward	
Guelph	16,319	1.9	116	8 to 10	5	6
Hamilton	105,000	13.5	128	7½ and 10	45c. per room	4.20
Kenora	6,500	1.	154		Assess., up to \$4 per \$1,000	2
Kingston	19,500	2.5	128	9.6 to 48	2.95 upward, according to size	2
Lindsay	8,000	.6	75	9.6 to 40	Assess., 3.75 and upward	3.77
					6	6.50

## COMMISSION OF CONSERVATION

## RATES AND CONSUMPTION FOR CITIES AND TOWNS WITH A POPULATION OF 5,000 AND OVER—(Continued)

City or Town	Population Served	Consumption			Rates		
		Total (millions of gal.)	Per capita (gal.)	Meter	Per Dwelling (dollars)	Flat	
							Extra for Bath-room (dollars)
<b>ONTARIO</b>							
London	57,000	4.62		81 8 to 15, plus meter rental	5 and upward, 40% discount rates	7.50 on flat	
Midland	6,253	.22	.36	11 to 33	6 for 1st tap	6	
Niagara Falls	11,700	3	250	6 to 12	4	4	
North Bay	8,782			6 to 8			
Orillia	7,360	.6	82		7 and upward		4.50
Oshawa	8,200	.49	60	12 to 16	7.50 and upward		
Ottawa	101,795	17.68	174	6 to 8	6 for 1 tap	1	
					Assess., from 1/5 of 1% on large values to 1% on small ones		
Owen Sound	12,592	1	79	13	3.33	3.33	
Pembroke	5,000	.75	150	10 to 30	6 per dwelling of 3 rooms	6	
Peterborough	20,000	3	150	13½ to 40	4 and upward acc. to no. of rooms	5	
Port Arthur	16,500	2.17	132	11.2 to 16	9 and upward		
Port Hope	5,000	.18	36	10 to 25	5 and 6 per tap		
				with a minimum of 9 per year			
St. Catharines	17,500	2.75	157	4.8 to 19.2	3.50 to 6	5	
St. Thomas	15,453			8 to 16	3.50 and upward	3.50	
Sarnia	12,000	3.5	292		3 and upward	4	
Sault Ste. Marie	13,000			8 to 24	5 and upward	4	
Smiths Falls	5,000			5	10		
Steelton	5,500	.24	44		8 and upward		
Stratford	10,000	1.2	120	7½ to 54	5 to 12	7.50	
Sudbury	7,040	1.05	149	6 to 25, quarterly minimum of \$8	10.66 and upward	5.32	
Toronto	500,000	50	100	7½ and 10	2 and upward acc. to no. of rooms	2.75	
Trenton	5,000	.2	40	6.4 to 16	5 per tap		
Welland	7,204	1.2	167	5	Average of 10		
Windsor	27,000	7.5	278	10	Assess., 3.20 and upward		
Woodstock	10,000	1.37	137	6½ to 20	4 for 1st tap	3.60	
<b>MANITOBA</b>							
Brandon	18,000	1.29	72	6½ to 40			
Dauphin	5,000			6 to 32			
St. Boniface	7,740	.25	32	25 and 50	8 and upward	7	
				less 10 to 25% discount			
Winnipeg	168,000	8	48	23	7 and upward acc. to size		

## WATER-WORKS OF CANADA

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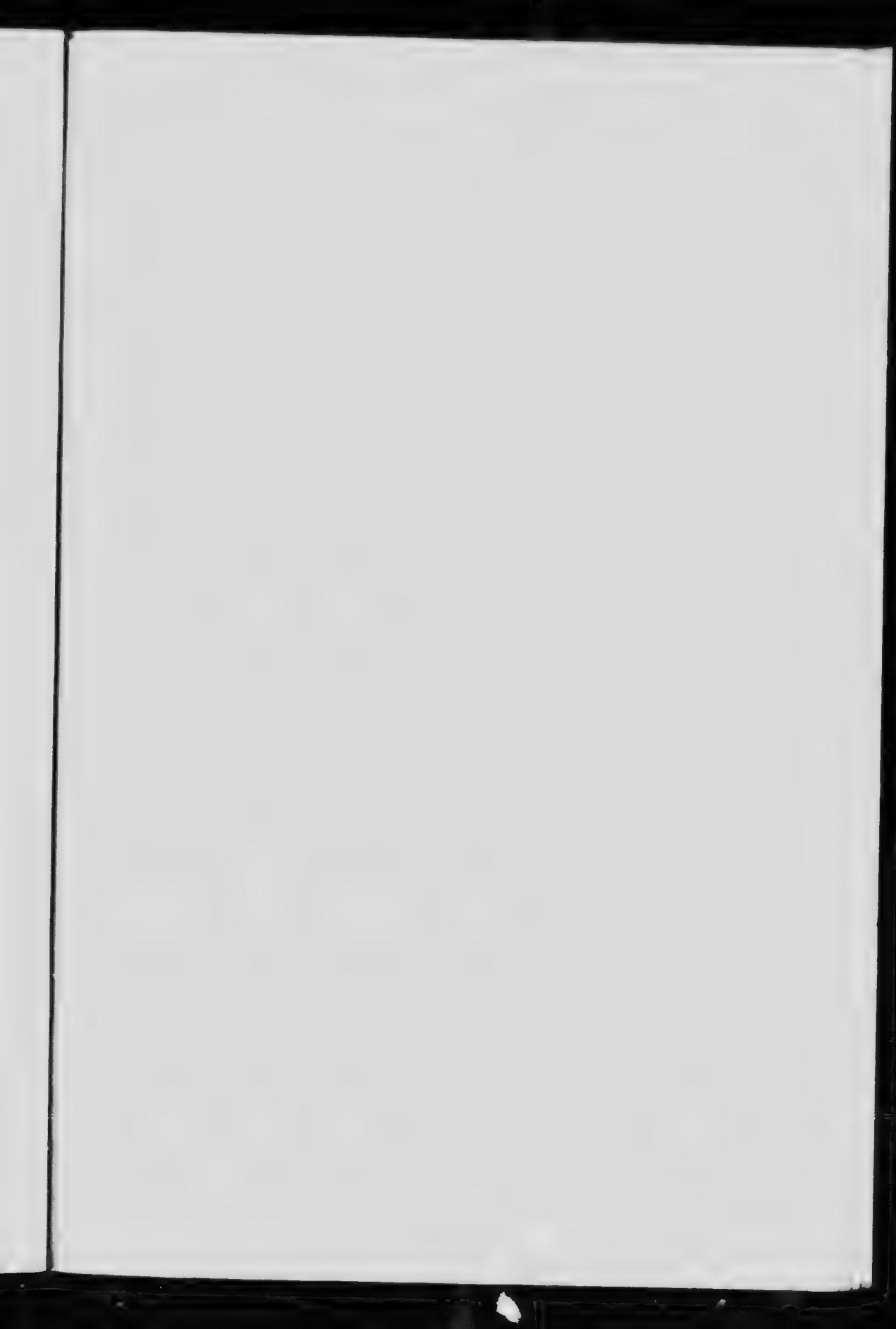
## RATES AND CONSUMPTION FOR CITIES AND TOWNS WITH A POPULATION OF 5,000 AND OVER—(Continued)

City or Town	Population Served	Consumption			Rates		
		Total (million of gal.)	Per capita (gal.)	Per 1,000 gal. (cents)	Meter		Flat
					Per Dwelling (dollars)	Extra for Bath-room (dollars)	
<b>SASKATCHEWAN</b>							
Moose Jaw	15,000	.72	48	16 to 40			
Prince Albert	15,000	.6	40	8 to 32			
Regina	50,000	2	40	6 to 25	10 and upward		
Saskatoon	30,000	1.87	62	16 to 40	9 and upward acc to no. of rooms		
Weyburn	5,400			24 to 64			
Yorkton	5,000			80			
<b>ALBERTA</b>							
Calgary	75,000	12	160	6 to 22	8 and upward based on no. of rooms	3	
Edmonton	60,000	4.75	79	16 to 40*			
Lethbridge	11,500	1.42	124	15 to 60	8 and upward*	8*	
Medicine Hat	12,000	2.3	192	16 to 40	12 and upward	6	
<b>BRITISH COLUMBIA</b>							
Fernie	5,000	1.25	250	4 to 40	18 and upward		
Kamloops	6,000	1.2	200	20 to 50	18 and upward	9	
Nanaimo	9,000			4½ to 24	12 and upward based on no. of persons		
Nelson	7,500	1	133				
New Westminister	17,500	1.4	80	16 to 40†	12 and upward		
North Vancouver	10,000	1	100		12 and upward†		
Prince Rupert	6,050	.5	83	Up to 64	4 to 9.60		
Vancouver	174,000	18	103	1½ to 25½	6 and upward	6	
Victoria	55,000	4	73	12½ to 22½	6	6	

\* All subject to 5 per cent discount.

† All subject to discounts of 20 to 30 per cent.







Example of Growth in Sewer Pipes

## Sewerage Systems

### NOVA SCOTIA

**AMHERST**, Cumberland co.: 20 miles vitrified clay, circular sewers, part for combined domestic sewage and street drainage, part carrying these separately, with four 20 in. and 24 in. outlets into La Planche river; cost of sewers, \$136,000.

**ANNAPOLE & ROYAL**, Annapolis co.: There is no municipal system; sewers are owned jointly by property holders.

**BRIDGETOWN**, Annapolis co.: Only partly sewerized; 2½ miles of sewers, for combined domestic sewage and street drainage, with 20 in. outlet into Annapolis river; cost of sewers, \$8,000.

**BRIDGEWATER**, Lunenburg co.: 4 miles of sewers for combined street drainage and domestic sewage, with 4 in. to 12 in. outlets into La Have river; cost of sewers included with cost of water-works given on p. 8.

**CANNING**, Kings co.: No public system; but a number of private sewers are grouped to discharge into common outlets.

**DARTMOUTH**, Halifax co.: 10 miles of sewers for combined street drainage and domestic sewage, with outlets into the Atlantic.

**DIGBY**, Digby co.: 1 mile of privately owned sewers, for domestic sewage only, with outlet into Annapolis basin.

**GLACE BAY**, Cape Breton co.: 5½ miles of sewers for combined street drainage and domestic sewage, discharging into the Atlantic; cost of sewers, \$81,000.

**HALIFAX**, Halifax co.: 30 miles of sewers, for combined domestic sewage and street drainage, discharging into Halifax harbour; cost of sewers, \$800,000.

**HANTSPODE**, Hants co.: 1 mile of sewers, for combined street drainage and domestic sewage, with 18 in. outlet into Avon river; cost of sewers, \$7,300.

**KENTVILLE**, Kings co.: 3 miles of sewers, for combined street drainage and domestic sewage, with 18 in. and 24 in. outlets into Cornwallis river; cost of sewers, \$14,000.

**LIVERPOOL**, Queen's: Portion of town sewered. 1 mile of sewers for domestic sewage only, with 6 in., 9 in., and 10 in. outlets into Liverpool river; cost of sewers, \$2,000.

**LUNENBURG**, Lunenburg co.: 10 miles of sewers, for combined domestic sewage and street drainage, with 12 in., 15 in., 20 in., and 30 in. outlets into Lunenburg harbour; cost of sewers, \$40,000.

**MIDDLETON**, Annapolis co.: Partly sewered. 1½ miles of sewers for combined street drainage and domestic sewage, with 20 in. outlet into Annapolis river; cost of sewers, \$8,000.

**NEW GLASGOW**, Pictou: 5 miles of sewers, for combined street drainage and domestic sewage with 1 ft. to 3 ft. outlets into East river; cost of sewers, \$95,000.

**PICTOU**, Pictou co.: Greater portion of town sewered by private systems, a number of persons joining together to construct a sewer at their own expense. These sewers are 4 in. to 6 in., with outlets into harbour.

**STELLARTON**, Pictou co.: 4 miles of sewers, for separate domestic sewage and street drainage, with 10 in. and 18 in. outlets into East river below tide water; cost of sewers, \$25,000.

**SYDNEY**, Cape Breton co.: Total of 23 miles of sewers for combined domestic sewage and street drainage which are divided as follows: ½ m. of 2 in., 1 m. of 20 in., 1½ m. of 18 in., 2½ m. of 16 in., ½ m. of 15 in., 3½ m. of 12 in., 3½ m. of 10 in., ½ m. of 9 in., 8½ m. of 8 in., and ½ m. of 6 in. 1 of vitrified circular pipe; there are five 24 in., four 20 in., one 18 in., one 15 in., and two 12 in. outlets into Sydney harbour and Muggah creek (portion of harbour); some of the sewers carry street drainage only; cost of sewers, \$222,390.

**SYDNEY MINES**, Cape Breton co.: 7½ miles of sewers, for street drainage and domestic sewage with 24 in. and 30 in. outlets into Atlantic; cost of sewers, \$92,000.

**TRENTON**, Pictou co.: Proposed sewerage system: combined domestic and storm sewers, 5 miles of mains with two 24 in. outlets discharging into Pictou harbour; estimated cost of sewers, \$30,000.

**TRURO**, Colchester co.: 11 miles of separate sanitary sewers divided as follows: ½ m. of 20 in., circular vitrified pipe; 3 m. of 10 in. to 15 in. vitrified pipe; 7½ m. of 8 in. vitrified pipe. There are also 2½ miles

## SEWERAGE SYSTEMS OF NOVA SCOTIA 101

of street sewers divided as follows:  $\frac{1}{2}$  in. of 27 in. to 6 in. elliptical  
sewers;  $\frac{1}{2}$  in. of 30 in. and 24 in. circular vitrified pipe;  
 $\frac{1}{2}$  in. of 18 in. to 12 in. vitrified pipe. The outlets employed in Salmon river. Cost of sewers, \$1.

**WINDSOR**, Hants co.: 1 miles of sewers, for combined domestic sewage and street drainage, with outlets into Avon river.

**WOLFSVILLE**, Kings co.: 4 miles of sewers for combined street drainage and domestic sewage with two 18 in. outlets into tide-water; cost of sewers, \$14,000.

**YARMOUTH**, Yarmouth co.: Partly sewer'd, the sewer carrying combined domestic sewage and street drainage, with 6 in. to 18 in. outlets into Yarmouth harbour.

## PRINCE EDWARD ISLAND

**CHARLOTTETOWN**, Queens co.: 14 miles of sewer mains carrying domestic sewage only, with outlet into Hillsboro river; sewers are of circular vitrified pipe and range from 6 in. to 18 in. diameter; cost of sewers, \$150,000.

**SUMMERSIDE**, Prince co.: 8 miles of sewers for domestic sewage only, discharging into harbour; cost of sewers included in cost of water-works, given on p. 15.

## NEW BRUNSWICK

**CAMPBELLTON**, Restigouche co.: 12 miles of sewers for separate domestic sewage with one 16 in., three 10 in. and two 9 in. outlets into the mouth of Restigouche river; cost of sewers, \$64,116.

**CHATHAM**, Northumberland co.: 11 miles of sewers, for domestic sewage only, with two 14 in. and one 6 in. outlets into mouth of Miramichi river; cost of sewers, \$49,000.

**FREDERICTON**, York co.: Total of 14½ miles of sewers for domestic sewage only with a 30 in. outlet into St. John river, one mile below the city; the other sewers are divided as follows: ½ m. of 18 in., ½ m. of 15 in., ½ m. of 12 in., ½ m. of 10 in. and 12½ m. of 8 in., all terra cotta, circular; cost of sewers, \$88,000.

**MILLTOWN**, Charlotte co.: 4 miles of sewers for combined street drainage and domestic sewage, with 6 in. × 10 in. to 36. in. × 36 in. outlets into St. Croix river; cost of sewers, \$25,000.

**MONCTON**, Westmorland co.: Total of 19½ miles of sewers for combined domestic sewage and street drainage which are divided as follows: 1 m. of 2 ft. to 4 ft. square wooden, with V-shaped bottom; 7 m. of 2 ft. × 1 ft. to 4 ft. × 2½ ft. egg-shaped, brick; 2½ m. of 15 in. to 20 in. glazed clay; 8 m. of 10 in. and 12 in. glazed clay; ¾ m. of 8 in. and 9 in. glazed clay. The system has eight outlets into Petitcodiac river. Cost of sewers, \$172,983.

**NEWCASTLE**, Northumberland co.: Partly sewerized; 3 miles of sewers, for domestic sewage only, with outlets into Miramichi river; cost of sewers, \$40,000.

**PERTH**, Victoria co.: Only private sewers, with 4 in. and 6 in. outlets into St. John river.

**ST. ANDREWS**, Charlotte co.: Combined street and domestic sewers with outlets into harbour.

**ST. JOHN**, St. John co.: Total of 43½ miles sewers for combined domestic sewage and street drainage divided as follows: 1½ m. of 24 in. to 36 in.

circular, brick; 11½ m. of various sizes, wood; ½ m. of 18 in. to 24 in. stoneware pipe; 17½ m. of 12 in. and 15 in. stoneware pipe; 11½ m. of 8 in. and 10 in. stoneware pipe; ½ m. of 6 in. stoneware pipe; ½ m. of 8 in. to 24 in. C.I. pipe. The sewers empty into the harbour and the fact that the larger ones may seem comparatively small is explained by the hilly nature of the city and the short distance from almost any point to the ocean. Cost of sewers, \$594,879.

**ST. STEPHEN**, Charlotte co.: 10 miles of sewers for combined street drainage and domestic sewage, with outlets into tide-water and Denys stream; cost of sewers, \$10,000.

**SACKVILLE**, Westmorland co.: 3½ miles of sewers, for domestic sewage only, with a 1½ ft. × 2 ft. outlet into a small tributary of the Tatamar river; cost of sewers, \$30,000.

**WOODSTOCK**, Carleton co.: 4 miles of sewers for combined street drainage and domestic sewage, with 10 in. and 16 in. outlets into St. John river; cost of sewers, \$27,200.

## QUEBEC

**ACTIONVALE**, Bagot co.: Portion of town sewered; sewers carry domestic sewage separately with outlet into Moose river; cost of sewers, \$1,500.

**ARTHABASKA**, Arthabaska co.: Only portion of town sewered; 1 mile of sewers for domestic sewage only, with 4 in. outlet discharging into Nicolet river; cost of sewers, \$1,500.

**ASBESTOS**, Richmond co.: 1½ miles of sewers for domestic sewage only with a 12 in. outlet discharging into Perkins stream; cost of sewers, \$10,000.

**AYLMER**, Ottawa co.: 6½ miles of combined street and domestic sewers, with 24 in. outlet into lake Deschênes; cost of sewers, \$46,000.

**BAGOTVILLE**, Chicoutimi co.: 1½ miles of combined street and domestic sewers with 6 in. to 12 in. outlets into Ha Ha bay; cost of sewers, \$6,000.

**BEAUHARNOIS**, Beauharnois co.: 3 miles of sewers with 8 in. to 15 in. outlets into lake St. Louis.

**BELŒIL**, Verchères co.: 1 mile of both separate and combined street and domestic sewers, with 6 in. and 9 in. outlets into Richelieu river; a large portion is privately owned; cost of sewers, \$5,000.

**BIENVILLE**, Lévis co.: 3 miles of sewers for domestic sewage only, with outlets into St. Lawrence river; cost of sewers, \$7,000.

**BLACK LAKE**, Megantic co.: 5 miles of sewers for both domestic sewage and street drainage, with a 24 in. outlet into Thetford river; cost of sewers, \$25,000.

**BUCKINGHAM**, Labelle co.: 3 miles of sewers for street drainage and domestic sewage, with 24 in. outlet into Lièvre river; cost of sewers, \$38,856.

**CAP ST. IGNACE**, Montmagny co.: Sewers for domestic sewage only, with outlet into St. Lawrence river.

**CARTIERSVILLE**, Jacques-Cartier co.: 3 miles of sewers for domestic sewage only; sewage treated with hypochlorite of lime and discharged through a 3 ft.  $\times$  2 ft. outlet into river des Pâties; cost of sewers, \$50,000; cost of treatment plant, \$5,000.

**CHAMBLY BASIN**, Chambly co.: Proposed system being installed will consist of 3 miles of sewers, with very few exceptions to carry domestic sewage only, with one 18 in. outlet into Richelieu river; estimated cost of sewers, \$67,000.

**CHICOUTIMI**, Chicoutimi co.: 8 miles of combined street and domestic sewers, with 8 in. to 15 in. outlets into Saguenay river; cost of sewers, \$50,000.

**COATICOOK**, Standstead co.: 2 miles of sewers for combined domestic sewage and street drainage, with eight outlets of from 6 in. to 9 in. into Coaticook river; cost of sewers, \$10,000.

**CONTRECOEUR**, Verchères co.: Private sewers with 6 in. to 9 in. outlets into St. Lawrence river.

**COOKSHIRE**, Compton co.: 3 miles of sewers for combined street drainage and domestic sewage, with 12 in. outlet into Eaton river; cost of sewers included in cost of water-works, given on p. 27.

**DANVILLE**, Richmond co.: Partly sewerized; 1 mile of sewers with outlet into small stream.

**DORVAL**, Jacques-Cartier co.: 5 miles of sewers for domestic sewage only, with a 15 in. outlet into lake St. Louis; sewage treated with hypochlorite of lime; cost of sewers, \$55,000; cost of treatment plant, \$7,000.

**DRUMMONDVILLE**, Drummond co.: 4 miles of sewers, part carrying street drainage and domestic sewage separately and part combined, with 1c in. and 30 in. outlets into St. Francis river; cost of sewers, \$41,000.

**FARNHAM**, Missisquoi c. 6 miles of sewers for combined street and domestic sewage, with three 24 in. and four 15 in. outlets into Yamaska river; cost of sewers, \$64,508.

**FRASERVILLE**, Temiscouata co.: 14 miles of sewers, carrying street drainage and domestic sewage separately, with 10 in. to 20 in. outlets into river du Loup and the St. Lawrence; cost of sewers, \$75,000.

**GENTILLY**, Nicolet co.:  $\frac{1}{2}$  mile of sewers for domestic sewage only with 10 in. outlets into the St. Lawrence.

**GRANBY**, Shefford co.: 4 miles of sewers for combined street drainage and domestic sewage, with 8 in. and 24 in. outlets into Yamaska river; cost of sewers, \$15,000.

**GRAND'MÈRE**, Champlain co.:  $4\frac{1}{2}$  miles of sewers for combined street drainage and domestic sewage, with 6 in. and 8 in. outlets into Welsh and St. Maurice rivers; cost of sewers, \$10,000.

**HULL**, Ottawa co.: Partly sewerized; 9 miles of sewers for combined street drainage and domestic sewage, with 12 in. to 60 in. outlets into Ottawa river.

**HUNTINGDON**, Huntingdon co.:  $4\frac{1}{2}$  miles of sewers for domestic sewage only, with 12 in. outlets into Chateauguay river.

**IBERVILLE**, Iberville co.: 5 miles of combined street and domestic sewers, with 12 in. to 18 in. outlets into Richelieu river.

**JOLIETTE**, Joliette co.: 9 miles of combined street and domestic sewers, with 16 in. and 18 in. outlets into L'Assomption river; cost of sewers, \$55,000.

**KNOWLTON**, Brome co.: Partly sewerized;  $\frac{1}{2}$  mile of sewers for domestic sewage only, with 8 in. outlet into stream.

**LACHINE**, Jacques-Cartier co.:  $16\frac{1}{2}$  miles of sewers, part for combined street drainage and domestic sewage, part carrying these separately; with outlets into St. Lawrence river; cost of sewers, \$362,889.

**LACHUTE**, Argenteuil co.: Partly sewerized;  $\frac{1}{2}$  mile of sewers for domestic sewage only, with 8 in. outlets into North river; cost of sewers, \$2,000.

**LAPRAIRIE**, Laprairie co.:  $3\frac{1}{2}$  miles of sewers for combined street drainage and domestic sewage, with 24 in. outlet into St. Lawrence river; cost of sewers, \$26,977.

**L'ASSOMPTION**, L'Assomption co.: 2 miles of sewers for combined street drainage and domestic sewage, with 9 in. and 12 in. outlets into L'Assomption river; cost of sewers, \$10,000.

**LA TUQUE**, Champlain co.: 4 miles of sewers, carrying domestic sewage only, with 6 in. to 10 in. outlets into the St. Maurice river; cost of sewers, \$15,000.

**LAURENTIDES**, L'Assomption co.: 2 miles of sewers for combined street drainage and domestic sewage, with 6 in. to 12 in. outlets into Achigan, river, cost of sewers, \$3,000.

**LAUZON**, Lévis co.: 4½ miles of sewers for combined street drainage and domestic sewage, with four 6 in. to 14 in. outlets into the St. Lawrence; cost of sewers, \$60,000.

**LECLERCVILLE**, Lotbinière co.: Partly sewerized; ½ mile of combined street and domestic sewers, with 10 in. and 20 in. outlets into St. Lawrence river; cost of sewers, \$1,200.

**LENNOXVILLE**, Sherbrooke co.: 2 miles of sewers for combined street and domestic sewage with 12 in. outlets into St. Francis river; cost of sewers, \$7,573.

**LÉVIS**, Lévis co.: 13 miles of sewers for domestic sewage only, with outlets into the St. Lawrence; cost of sewers included with cost of water-works, given on p. 36.

**LONGUEUIL**, Chambly co.: 10 miles of sewers for combined street drainage and domestic sewage, with 18 in. and 2 ft. × 3 ft. outlets into St. Lawrence river; cost of sewers, \$80,000.

**LOUISEVILLE**, Maskinonge co.: 5 miles of combined street and domestic sewers, with 8 in. outlets into Yale river; cost of sewers, \$2,500.

**MAGOG**, Stanst. 1 co.. (In construction, 1914). 7 miles of sewers for separate domestic sewage and street drainage to be treated in purification tanks; total cost of sewer and disposal plant, \$65,000.

**MARIEVILLE**, Rouville co.: 2½ miles of combined street and domestic sewers; sewage treated in purification basins; cost of sewers, \$15,000; cost of disposal plant, \$16,000.

**MEGANTIC**, Compton co.: 6 miles of sewers for separate domestic sewage and street drainage; street drainage discharges into lake Megantic, domestic sewage into Chaudiere river.

**MONTBELLO**, Labelle co.: 1½ miles of sewers, for combined domestic sewage and street drainage, with 6 in. and 12 in. outlets into Ottawa river; cost of sewers, \$1,900.

**MONTMAGNY**, Montmagny co.: About 30 dwellings have private sewers.

**MONTMORENCY VILLAGE**, Quebec co.: 1½ miles of sewers for combined domestic sewage and street drainage, with 12 in. outlet into St. Lawrence river; cost of sewers included with cost of water-works, given on p. 30.

**MONTREAL**, Jacques-Cartier co.: 325 miles of sewers for combined domestic sewage and street drainage, with 3 ft. to 8 ft. outlets into St. Lawrence river and river des Prairies; sewage draining into river des Prairies is treated by intermittent filtration; cost of sewers, \$13,000,000, cost of disposal plant for river des Prairies, \$200,000 and it is proposed to expend an additional \$250,000 to obtain better purification.

**MONTREAL WEST**, Jacques-Cartier co.: 7 miles of combined street and domestic sewers, discharging through an open ditch into Little St. Pierre river; cost of sewers, \$100,000.

**MURRAY BAY**, Charlevoix co.: 1½ miles of sewers for domestic sewage, with a 9 in. outlet discharging into the St. Lawrence.

**NICOLET**, Nicolet co.: 2 miles of sewers for street drainage and domestic sewage with 24 in. outlets into Nicolet river; cost of sewers, \$4,500.

**NORTH HATLEY**, Stanstead co.: 3 miles of sewers, for domestic sewage only, with 6 in. outlets into Mass. appi river; cost of sewers, \$5,000.

**ORMSTOWN**, Chateauguay co.: Now partly completed, will have 2½ miles of sewers for domestic sewage only, with 9 in. outlets into septic tanks.

**PIERREVILLE**, Yamaska co.: 3 miles of combined street and domestic sewers, with 6 in. to 12 in. outlets into St. Francis river; cost of sewers, \$5,000.

**POINTE-AU-PIC**, Charlevoix co.: 1 mile of combined street and domestic sewers, with 6 in. to 12 in. outlets into St. Lawrence river; cost of sewers, \$12,000.

**POINTE-AUX-TREMBLES**, Laval co.: 1 mile of sewers for combined street drainage and domestic sewage, with 48 in. outlet into St. Lawrence river; cost of sewers, \$100,000.

**POINTE CLAIRE**, Jacques-Cartier co.: Partly sewerized; 6 miles of sewers for domestic sewage only; sewage treated in Imhoff tanks and effluent with chloride of lime; cost of sewers, \$72,000; cost of disposal plant, \$8,000.

**QUEBEC**, Quebec co.: 100 miles of sewers for combined street drainage and domestic sewage, with outlets into St. Charles and St. Lawrence rivers; cost of sewers, \$4,000,000.

**RICHMOND**, Richmond co.: Partly sewerized; 2½ miles of combined street and domestic sewers with 9 in. to 24 in. outlets into St. Francis river.

**BIGAUD**, Vaudreuil co.: Mostly private sewers; 1 street has a sewer main carrying combined street drainage and domestic sewage.

**RIMOUSKI**, Rimouski co.: 3 miles of combined street and domestic sewers, with 15 in. outlets into St. Lawrence river; cost of sewers, \$25,000.

**STE. ANNE-DE-BEAUPRÉ**, Montmorency co.: 3 miles of sewers for domestic sewage only, with 4 in. to 9 in. outlets into St. Lawrence river; cost of sewers, \$8,000.

**STE. ANNE-DE-BELLEVUE**, Jacques-Cartier co.: 4 miles of sewers for domestic sewage only; sewage flows into a settling tank and is sterilized.

**ST. BRUNO**, Chambly co.: ½ mile of sewers for combined street drainage and domestic sewage with 8 in. outlet into small stream; cost of sewers, \$300.

**ST. CÉSAIRE**, Rouville co.: 2 miles of sewers, for combined domestic sewage and street drainage with 12 in. and 15 in. outlets into Yamaska river; cost of sewers, \$5,000.

**ST. DENIS**, St. Hyacinthe co.: Partly sewerized; ½ mile of sewers for combined street drainage and domestic sewage, with 18 in. × 9 in. outlet into Richelieu river; cost of sewers, \$3,000.

**ST. FÉLIX-DE-VALOIS**, Joliette co.: Private domestic sewers with outlets into small stream tributary to Bayonne river.

**ST. HUGUES**, Bagot co.: Partly sewerized,  $\frac{1}{2}$  mile of sewers for domestic sewage only, with 6 in. outlets into Chibouet river; cost of sewers, \$2,500.

**ST. HYACINTHE**, St. Hyacinthe co.: Total of  $12\frac{1}{2}$  miles of sewers for combined domestic sewage and street drainage; there are two collecting mains, one 2,800 ft. long of brick, 30 in.  $\times$  42 in. elliptical, the other 4,275 ft. long, 24 in. circular tile; the other sewers are all circular tile varying from 12 in. to 24 in. diameter, all the outlets emptying into Yamaska river; cost of sewers, \$81,000.

**ST. JÉRÔME**, Terrebonne co.: Sewers carrying combined domestic sewage and street drainage, with 6 in., 9 in., 12 in., and 18 in. outlets into North river.

**ST. JÉRÔME-DU-LAC-ST. JEAN**, Chicoutimi co.:  $\frac{1}{2}$  mile of sewers for domestic sewage only, with 4 in. outlets discharging through a brook into lake St. John; cost of sewers, \$1,500.

**ST. JOHNS**, St. Johns co.: 10 miles of sewers for combined street drainage and domestic sewage, with 36 in. outlet into Richelieu river; cost of sewers, \$32,800.

**ST. JOSEPH-DE-BEAUCE**, Beauce co.:  $5\frac{1}{2}$  miles of sewers for domestic sewage only, with 9 in. to 12 in. outlets into Chaudière river; cost of sewers, \$87,700.

**ST. LAMBERT**, Chambly co.: 12 miles of separate street and domestic sewers, with 18 in. outlet into St. Lawrence river; proposed disposal plant of modified Imhoff tanks and disinfection; cost of sewers, \$200,000; estimated cost of proposed disposal plant with trunk sewer, \$90,000.

**ST. LAURENT**, Jacques-Cartier co.: 4 miles of sewers for combined street drainage and domestic sewage, treated in purification basin; cost of sewers, \$50,000; cost of disposal plant, \$4,000.

**STE. MARTINE**, Chateauguay co.: Private sewers for domestic sewage only, with 6 in. outlets into Chateauguay river.

**ST. PIE**, Bagot co.: Partly sewerized, 1 mile of combined street and domestic sewers, with 6 in. to 14 in. outlets into Yamaska river.

**ST. PIERRE**, Jacques-Cartier co.: 4½ miles of sewers for combined domestic sewage and street drainage, with a 36 in. outlet into St. Pierre river; cost of sewers, \$100,000.

**ST. RAYMOND**, Portneuf co.: Private sewers, with 6 in. to 12 in. outlets into Ste. Anne river.

**ST. ROSE**, Laval co.: 6 miles of sewers for domestic sewage only, sewage treated in Imhoff tanks; cost of sewers, \$60,000; cost of disposal plant, \$12,000.

**ST. TITE**, Champlain co.: Only part of town sewerized, 2 miles of sewers, carrying both domestic sewage and street drainage, with 8 in. outlets into rivers des Prairies and des Envies; cost of sewers, \$4,500.

**BAJLT-AU-RÉCOLLET**, Laval co.: 6 miles of sewers for domestic sewage only; sewage treated in filter beds with a 30 in. effluent outlet into river des Prairies; cost of sewers, \$175,000; cost of disposal plant, \$25,000.

**SAWYERVILLE**, Compton co.: Only part of town sewerized; ½ mile of sewers, carrying combined domestic sewage and street drainage, with a 10 in. outlet into Eaton river.

**SCOTSTOWN**, Compton co.: ½ mile of sewers, with a 9 in. outlet to river.

**SHAWINIGAN FALLS**, St. Maurice co.: 4½ miles of sewers, for combined domestic sewage and street drainage with 10 in. to 36 in. outlets into St. Maurice and Little Shawinigan rivers; cost of sewers, \$63,657.

**SHERBROOKE**, Sherbrooke co.: Total of 23½ miles of sewers for combined domestic sewage and street drainage divided as follows: 2,000 ft. of 3 ft. circular brick, 1,810 ft. of 2 ft. × 3 ft. elliptical brick, 1 m. of 27 in., 2 m. of 24 in., 1½ m. of 20 in., 3 m. of 18 in., 4 ... of 15 in., 5 m. of 12 in., 6 m. of 9 in. circular tile; there are 15 outlets ranging from 9 in. upwards into St. Francis, and Magog rivers; cost of sewers, \$193,000.

**SOREL**, Richelieu co.: 7 miles of sewers for combined street drainage and domestic sewage with outlets into the St. Lawrence; cost of sewers, \$44,000.

**TADOUSSAC**, Saguenay co.: ½ mile of sewers, for domestic sewage only, with 4 in., 6 in. and 8 in. outlets into Saguenay river.

**RREBONNE**, Terrebonne co.: 3 miles of combined street and domestic sewers with 6 in. outlets into Jesus river; cost of sewers, \$6,000.

**THETFORD MINES**, Megantic co.: 6 miles of sewers for combined domestic sewage and street drainage with ten outlets ranging from 8 in. to 24 in. into Thetford river; cost of sewers, \$40,000.

**THREE RIVERS**, St. Maurice co.: Total of 17 miles of sewers for combined domestic sewage and street drainage divided as follows:  $\frac{1}{2}$  m. of 16 in. circular, partly concrete and partly tile,  $\frac{1}{2}$  m. of 24 in., 1 m. of 18 in.,  $\frac{1}{2}$  m. of 15 in., 6 m. of 12 in., and  $\frac{3}{4}$  m. of 9 in. circular tile. There are 2 outlets of 24 in. and 16 in. respectively into the St. Lawrence; cost of sewers, \$218,000.

**UPTON**, Sagot co.: Partly sewerized;  $\frac{1}{2}$  mile of sewers for domestic sewage only with 9 in. outlet into Black river; cost of sewers, \$450.

**VALLEYFIELD**, Beauharnois co.: 12 miles of sewers for combined street drainage and domestic sewage, with 4 ft. to 5 ft. outlets into the St. Lawrence; cost of sewers, \$125,000.

**VAL-DE-GRANDE**, Val-d'Or co.: 3 miles of sewers for domestic sewage only with 9 in. outlets into the St. Lawrence.

**VAL-DE-RECUL**, Val-d'Orreuil co.: 1 mile of sewers for combined street drainage and domestic sewage, with 12 in. and 15 in. outlets into Quinchien and Ottawa rivers; cost of sewers, \$3,000.

**VERDUN**, Jacques-Cartier co.: 16 $\frac{1}{2}$  miles of combined street and domestic sewers with 24 in. outlets into St. Lawrence river; cost of sewers, \$1,000,000.

**VILLE-DAVILLE**, Arthabaska co.: 9 miles of sewers for domestic sewage only, with 10 in. and 14 in. outlets into Nicolet river; cost of sewers, \$10,000.

**TERVILLE**, Compton co.: 2 miles of sewers for domestic sewage only, with 12 in. outlet into Coaticook river.

**WEEDON CENTRE**, Wolfe co.:  $\frac{1}{2}$  mile of sewers, for domestic sewage only, with a 4 in. outlet into Weedon creek.

**WESTMOUNT**, Hochelaga co.: 29 $\frac{1}{2}$  miles of sewers for combined domestic sewage and street drainage. The larger sewers range in size from 3 ft.  $\times$  2 ft. egg-shaped to 4 ft. circular and are of brick, brick with vitrified blocks, and concrete. They discharge into the Montreal sewers.

**WINDSOR**, Richmond co.: Separate system of sewers with outlets into the St. Francis river.

## ONTARIO

**ALVINSTON**, Lambton co.: 1 mile of combined street and domestic sewers, discharging into Sydenham river; cost of sewers, \$2,000.

**AMHERSTBURG**, Essex co.: 4 miles of sewers for combined domestic sewage and street drainage, with three outlets from 12 in. circular to 2½ ft. x 3½ ft. elliptical, into Detroit river.

**ARNPRIOR**, Renfrew co.: 5½ miles of combined street and domestic sewers, with a 15 in. and a 30 in. by 36 in. outlet into Madawaska river; cost of sewers, \$46,513.

**BARRIE**, Simcoe co.: 20 miles of sewers, part carrying domestic sewage and street drainage separately, part carrying these combined with 6 in. to 15 in. outlets into lake Simcoe; part of sewage treated in sedimentation tank; cost of sewers, \$150,000; cost of disposal plant, \$14,000.

**BELLEVILLE**, Hastings co.: Total of 9½ miles of sewers, part of which carry domestic sewage and street drainage separately, and part carry these combined. There are 7½ m. of 9 in. and 10 in. vitrified clay and 2 m. of 20 in. vitrified clay, all circular and emptying into Moira river.

**BERLIN**, Waterloo co.: Total of 34½ miles of sewers for domestic and factory sewage only, divided as follows: 1½ m. of 48 in. circular, concrete; 12 m. of 12 in. to 30 in. circular, vitrified pipe; 27 m. of 9 in. circular, vitrified pipe. The sewage is treated in septic tanks and filtration beds. Total cost of sewers and disposal plant, \$413,223.

**BOWMANVILLE**, Durham co.: Sewers for domestic sewage only with a disposal plant which is to cost about \$10,000.

**BRAMPTON**, Peel co.: 9 miles of sewers for domestic sewage only; sewage treated in septic tank, thence to Etobicoke river; cost of sewers, \$78,000; cost of disposal plant, \$4,500.

**BRANTFORD**, Brant co.: 52½ miles of separate sanitary sewers divided as follows: ½ m. of 24 in. circular, brick and vitrified tile; 9½ m. of 12 in. to 22 in. vitrified tile; 41½ m. of 9 in. vitrified tile; 1 m. of 6 in. vitrified tile. There are 13½ m. of storm sewers divided as follows: 2½ m. of 30 in. to 45 in. circular, concrete; 5 m. of 15 in. to 24 in. vitrified tile; 6 m. of 12 in. vitrified tile. Sewers discharge into Grand river. Cost of sewers, \$531,000.

**BRIDGEBURG**, Welland co.: 7½ miles of sewers carrying combined street drainage and domestic sewage, sewage treated in septic tank; cost of sewers, \$93,103; cost of disposal plant, \$3,000.

**BROCKVILLE**, Leeds co.: 14 miles of sewers for combined street drainage and domestic sewage, with 8 in. and 16 in. outlets into the St. Lawrence; cost of sewers, \$250,000.

**BURLINGTON**, Halton co.: Street and cellar drainage with a 15 in. outlet into lake Ontario.

**CALEDONIA**, Haldimand co.: ½ mile of sewers for street drainage, with a 24 in. outlet into Grand river; cost of sewers, \$2,000.

**CARLETON PLACE**, Lanark co.: Partly sewerized; 4 miles of sewers carrying street drainage and domestic sewage separately, sewage treated in sedimentation tanks; cost of sewers, \$86,370; cost of disposal plant \$14,000.

**CHATHAM**, Kent co.: Combined street and domestic sewers, with 12 in. to 36 in. outlets into Thames river.

**CHESLEY**, Bruce co.: 6 miles of sewers for combined street drainage and domestic sewage, with 15 in. and 24 in. outlets into North Branch Saugeen river; cost of sewers, \$16,138.

**COBALT**, Nipissing dist.: 3 miles of separate street and domestic sewers with a 22 in. outlet to small tributary of lake Timiskaming; cost of sewers, \$40,000.

**COBOURG**, Northumberland co.: 6 miles of combined street and domestic sewers, with outlet into lake Ontario.

**COCHRANE**, Timiskaming dist.: 6 miles of sewers for separate domestic sewage and street drainage, with a 24 in. outlet into Marshy Lake; cost of sewers included in water-works, given on p. 68.

**COLLINGWOOD**, Simcoe co.: Partly sewerized; 10 miles of sewers for combined street drainage and domestic sewage; septic tank treatment; cost of sewers, \$64,444; cost of septic tank, \$6,000.

**CORNWALL**, Stormont co.: 9 miles of combined street and domestic sewers, with 18 in. and 24 in. outlets into St. Lawrence river; cost of sewers, \$18,000.

**DEPOT HARBOUR**, Parry Sound dist.:  $\frac{1}{2}$  mile of sewers for domestic sewage only; sewage treated in septic tank and filter bed; cost of sewers, \$1,500; cost of disposal plant, \$3,000.

**DUNNVILLE**, Haldimand co.: 5 miles of sewers for domestic sewage only, with outlet into Grand river; cost of sewers, \$48,000.

**FORT FRANCES**, Rainy River dist.: 4 miles of combined street and domestic sewers, with a 20 in. outlet into Rainy river; cost of sewers, \$70,201.

**FORT WILLIAM**, Thunder Bay dist. Total of 35 miles of sewers for combined street drainage and domestic sewage which may be divided as follows: 1 $\frac{1}{2}$  m. 60 in. to 84 in. circular, concrete and brick; 1 m. of 42 in. to 60 in. V-shaped concrete; 1 $\frac{1}{2}$  m. of 36 in. to 54 in. box type;  $\frac{1}{2}$  m. of 24 in. to 54 in. egg shaped, brick;  $\frac{1}{2}$  m. of 24 in. to 48 in. circular, C.I.; 9 $\frac{1}{2}$  m. of 18 in. to 36 in. egg-shaped, concrete;  $\frac{1}{2}$  m. of 18 in. to 24 in. circular, tile; 19 m. of 8 in. to 15 in. circular, tile;  $\frac{1}{2}$  m. of wooden box. The outlets range from 12 in. to 84 in. and empty into Neebing and Kaministikwia rivers.

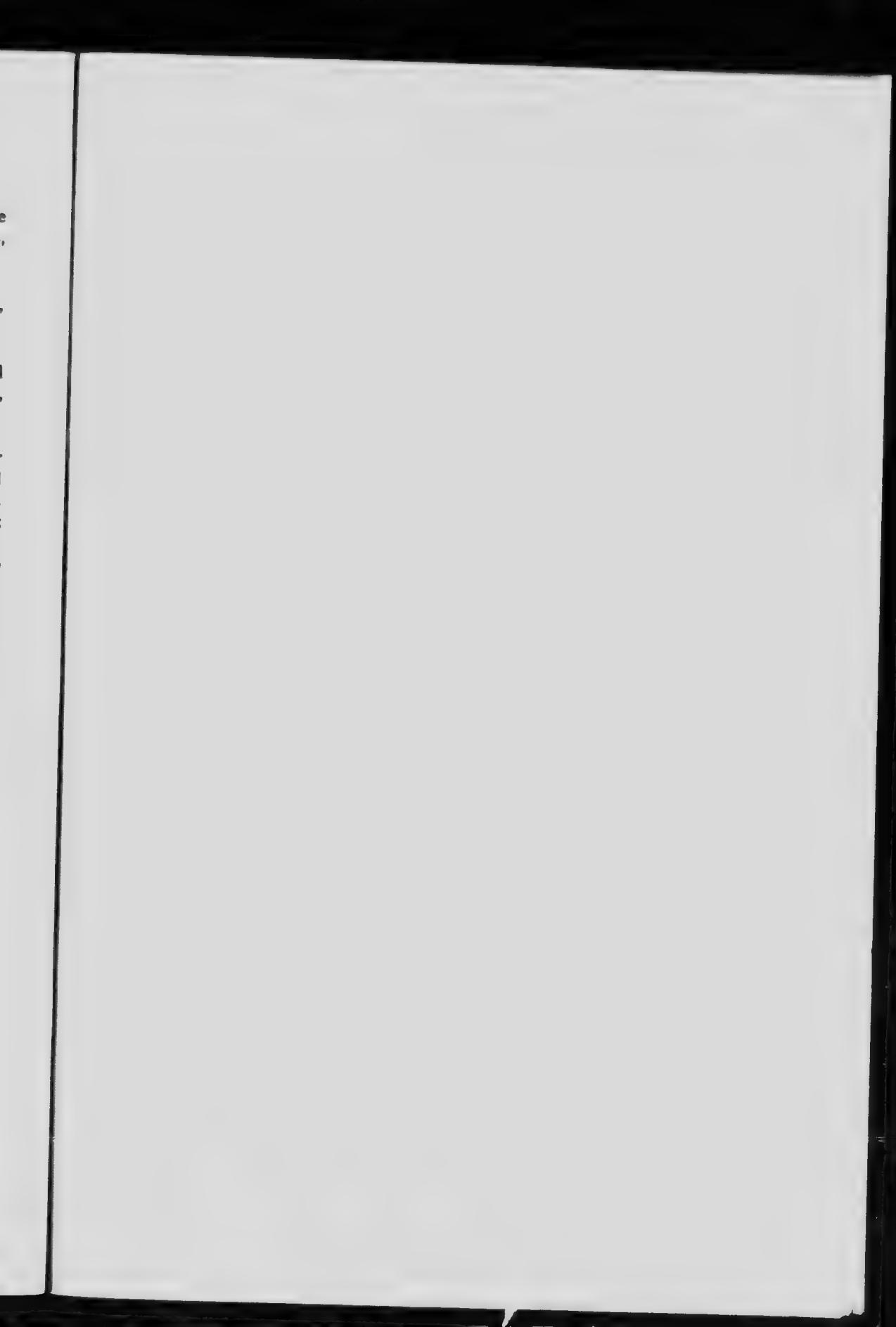
**GALT**, Waterloo co.: 23 $\frac{1}{2}$  miles of sewers; street drainage and domestic sewage carried separately; sewage treated in septic tank; cost of sewers, \$495,000; cost of disposal plant, \$22,000.

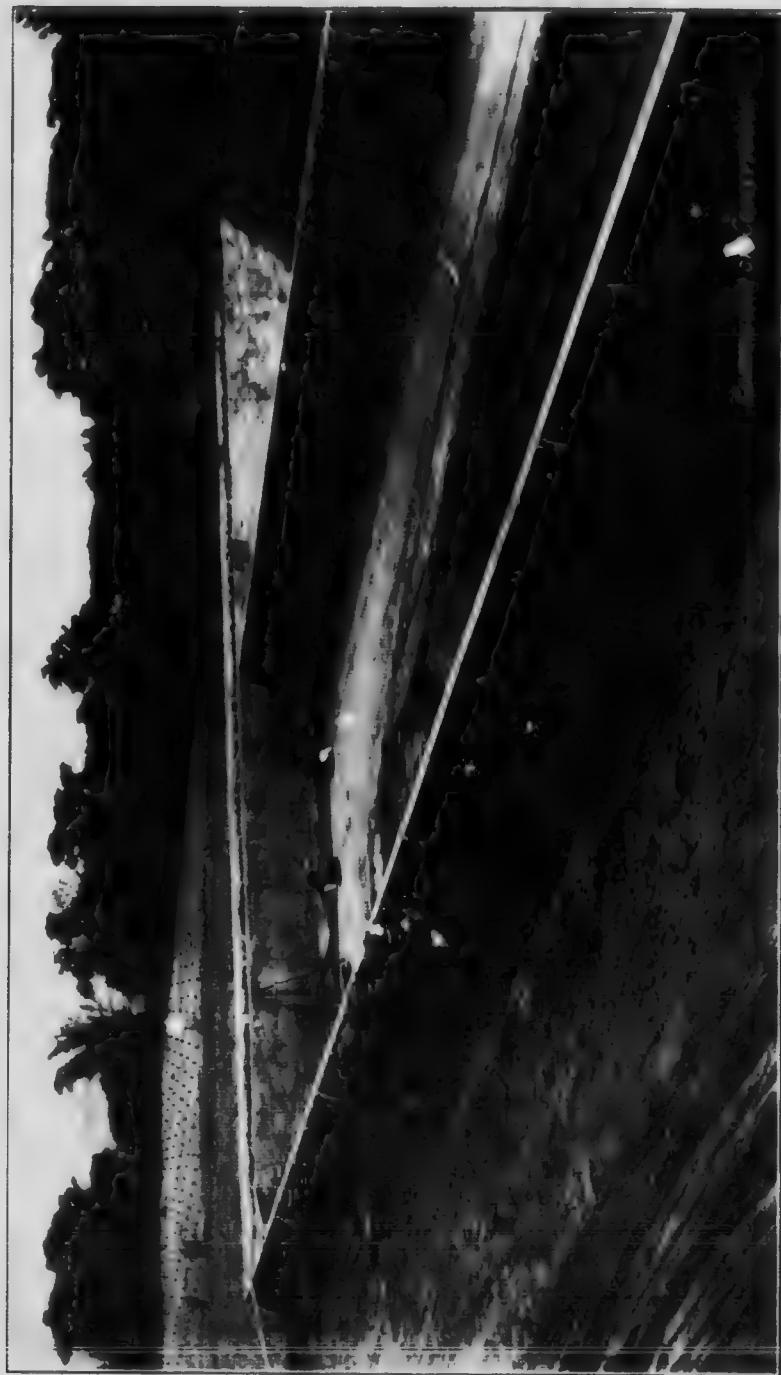
**GANANOQUE**, Leeds co.: 5 $\frac{1}{2}$  miles of sewers for domestic sewage only, with two 12 in. outlets into St. Lawrence river; cost of sewers, \$66,500.

**GODERICH**, Huron co.: 10 miles of sewers for combined domestic sewage and street drainage, with 15 in. and 42 in. outlets into lake Huron; cost of sewers, \$55,000.

**GUELPH**, Wellington co.: 20 miles of sewers for combined domestic sewage and street drainage; sewage is treated in septic tank and filtered; the sewer main to treatment plant is 20 in. diameter and the effluent is discharged into Speed river through a pipe of the same size; the other sewer mains are of 18 in., 15 in., and 9 in. circular tile; total cost of sewers and treatment plant, \$250,000.

**HAILEYBURY**, Nipissing dist.: 5 miles of domestic and 4 $\frac{1}{2}$  miles of street sewers; sewage treated in septic tank; cost of sewers, \$77,261; cost of disposal plant, \$4,512.





Hamilton Sewage Disposal Works—Tanks and Filtering Beds

**HAMILTON**, Wentworth co.: Total of 135½ miles of sewers for combined street drainage and domestic sewage which is divided as follows:  $\frac{1}{2}$  m. of 5 ft.  $\times$  6 ft. to 6 ft.  $\times$  8 ft. square section; 5½ m. of 2½ ft.  $\times$  2½ ft. to 4½ ft.  $\times$  5 ft. tunnel section; 8½ m. of 2 ft.  $\times$  3 ft. to 3 ft.  $\times$  5 ft. egg-shaped; 3 m. of 39 in. to 78 in. circular; 9½ m. of 20 in. to 36 in. circular; 109½ m. of 9 in. to 18 in. circular. The larger sewers are of concrete and brick. The sewage is treated partly by Emscher tanks, partly by chemical precipitation and partly by septic tanks and percolating filters. Total cost of sewers, \$2,300,000; cost of disposal plants, \$280,000.

**HAWKESBURY**, Prescott co.: 3½ miles of combined street and domestic sewers, with a 42 in. outlet into Ottawa river; cost of sewers, \$53,000.

**HUNTSVILLE**, Muskoka dist.: Partly sewerized; 1 mile of combined street and domestic sewers, with a 12 in. outlet into Muskoka river; cost of sewers, \$1,200.

**IROQUOIS**, Dundas co.: Partly sewerized; 1½ miles of sewers for combined street and domestic sewage, with outlets into the St. Lawrence river.

**KENORA**, Kenora dist.: 9 miles of sewers for combined street drainage and domestic sewage, with 9 outlets, 6 in. to 12 in., into lake of the Woods; cost of sewers, \$52,691.

**KINGSTON**, Frontenac co.: 30 miles of combined street and domestic sewers, with 12 in. to 30 in. outlets into lake Ontario.

**KINGSVILLE**, Essex co.: Partly sewerized;  $\frac{1}{2}$  mile of combined street and domestic sewers, with 12 in. outlet into lake Erie.

**LINDSAY**, Victoria co.: 9 miles of sewers carrying street drainage and domestic sewage separately, with 12 in. and 18 in. outlets into Scugog river.

**LISTOWEL**, Perth co.: 3 miles of separate sewers for domestic sewage and street drainage; sewage treated in a septic tank, with outlet into Maitland river.

**LONDON**, Middlesex co.: 71 miles of combined street and domestic sewers; separate storm sewers under construction; sewage treated in sedimentation tanks and coke filter beds, effluent discharging into Thames river; cost of sewers, \$300,000.

**MEAFORD**, Grey co.: Partly sewerized; 2 miles of combined street and domestic sewers, with 10 in. to 24 in. outlets into Bighead river; cost of sewers, \$2,883.

**MIDLAND**, Simcoe co.: Partly sewerized; separate street and domestic sewers with 16 in. and 18 in. outlets into Georgian bay; cost of sewers, \$50,000.

**MILLBROOK**, Durham co.: 1 mile of sewers for cellar drainage only, with outlet into small stream.

**MILTON**, Halton co.: 1 mile of sewers for storm water only, with outlets into Twelve-mile creek.

**NAPANEE**, Lennox and Addington co.: 2 miles of combined street and domestic sewers; sewage treated in filters; cost of sewers, \$40,000; cost of disposal plant, \$35,000.

**NEW LISKEARD**, Nipissing dist.: 4 miles of sewers carrying street drainage and domestic sewage separately; sewage treated in septic tank with 18 in. outlet into Waibi river; cost of sewers, \$29,000; cost of disposal plant, \$14,000.

**NIAGARA**, Lincoln co.: 3 miles of sewers for combined street drainage and domestic sewage, with 6 in. to 12 in. outlets into Niagara river and lake Ontario; cost of sewers, \$12,000.

**NIAGARA FALLS**, Welland co.: Total of 29½ miles of combined street and domestic sewers divided as follows: 1½ m. of 2 ft. × 3 ft. to 6 ft. × 4 ft. elliptical, brick; 1½ m. of 20 in. to 30 in. circular, tile; 26½ m. of 6 in. to 18 in. circular tile. The outlets empty into Niagara river.

**NORTH BAY**, Nipissing dist.: Separate domestic sewers and storm sewers; sewage treated in septic tank; cost of sewers, \$125,213.

**NORWICH**, Oxford co.: 1 mile of sewers, with 10 in. and 12 in. outlets into Otter creek; cost of sewers, \$5,300.

**OAKVILLE**, Halton co.: 5½ miles of separate domestic sewers; sewage treated in sedimentation tank and chlorinated; there are two treatment plants, one with a 12 in., the other with a 15 in. main; cost of sewers, \$125,000; cost of treatment plants, \$12,190.

**ORANGEVILLE**, Dufferin co.: Partly sewerized, 1 mile of combined street and domestic sewers, with 16 in. outlet into small tributary of Credit river; cost of sewers, \$2,000.

**ORILLIA**, Simcoe co.: Sewers carry domestic sewage only, which is treated by sedimentation, sludge sent to aeration beds and effluent discharged into lake Simcoe.

**OSHAWA**, Ontario co.: 12½ miles of separate domestic sewers and 3 miles of storm sewers; sewage treated in sedimentation tanks; cost of sewers, \$94,200; cost of disposal plant, \$7,500.

**OTTAWA**, Carleton co.: Total of 94½ miles of sewers for combined street drainage and domestic sewage, divided as follows: 4½ m. of 60 in. to 84 in. circular, brick and concrete; 5 m. of 2 ft. × 2 ft. to 4½ ft. × 6½ ft., brick and stone; ¾ m. of 2 ft. × 3 ft. to 2½ ft. × 3½ ft. egg-shaped, brick and special section, concrete; ¾ m. of 24 in. to 60 in. steel pipe; 5 m. of 30 in. to 48 in. circular, concrete and brick; 78½ m. of 9 in. to 24 in. circular, tile. The outlets empty into the Ottawa and Rideau rivers. Cost of sewers, \$2,019,065.

**OWEN SOUND**, Grey co.: 20 miles of combined street and domestic sewers, with 9 in. to 12 in. by 24 in. outlets into Sydenham river and Georgian bay; cost of sewers, \$122,315.

**PAISLEY**, Bruce co.: Partly separate and partly combined street and domestic sewers, with 10 in. and 14 in. outlets into Saugeen river.

**PALMERSTON**, Wellington co.: Partly sewerized; 3½ miles of sewers to carry combined street drainage and domestic sewage with 10 in. and 20 in. outlets into small stream; cost of sewers, \$25,000; system is designed for the future installation of septic tanks and filters.

**PARRY SOUND**, Parry Sound dist.: 2 miles of combined street and domestic sewers, with 12 in. and 24 in. outlets into Seguin river and Georgian bay; cost of sewers, \$20,000.

**PEMBROKE**, Renfrew co.: 9 miles of sewers for domestic sewage only, with two outlets, 16 in. and 8 in., into Ottawa river; cost of sewers, \$45,892.

**PENETANGUISHENE**, Simcoe co.: Partly sewerized;  $3\frac{1}{2}$  miles of combined street and domestic sewers with outlets into Georgian bay; cost of sewers, \$15,000.

**PERTH**, Lanark co.: 7 miles of sewers, part for combined street drainage and domestic sewage, part carrying these separately, with 12 in. and 18 in. outlets into Tay river; cost of sewers, \$120,000.

**PETERBOROUGH**, Peterborough co.: Total of  $33\frac{1}{2}$  miles of separate sewers for domestic sewage only, divided as follows:  $\frac{1}{2}$  m. of 30 in. and 33 in. circular, concrete;  $1\frac{1}{2}$  m. of  $2\frac{1}{2}$  ft.  $\times$   $3\frac{1}{2}$  ft. brick;  $2\frac{1}{2}$  m. of 15 in. and 18 in. vitrified pipe;  $9\frac{1}{2}$  m. of 12 in. vitrified pipe;  $19\frac{1}{2}$  m. of 8 in. to 10 in. vitrified pipe. The outlets empty into Otonabee river and Little lake. Cost of sewers, \$252,000.

**PETROLIA**, Lambton co.: Partly sewerized;  $4\frac{1}{2}$  miles of combined street and domestic sewers, with 12 in. to 36 in. outlets into Bear creek; cost of sewers, \$53,462.

**PORT ARTHUR**, Thunder Bay dist. Total of  $34\frac{1}{2}$  miles of sewers, part carrying combined street drainage and domestic sewage and part carrying these separately. All the sewer pipes are circular and are divided as follows:  $15\frac{1}{2}$  m. of 8 in. tile and a very small amount of 6 in.;  $15\frac{1}{2}$  m. of 10 in. and 12 in. tile;  $3\frac{1}{2}$  m. of 15 in. to 24 in. tile. The outlets empty into lake Superior. Cost of sewers, \$500,590.

**PORT HOPE**, Durham co.: Partly sewerized;  $6\frac{1}{2}$  miles of sewers for domestic sewage only, with 10 in. to 15 in. outlets into Ganeraska river; cost of sewers, \$24,561.

**PRESCOTT**, Grenville co.: 7 miles of combined street and domestic sewers, with 24 in. outlets into St. Lawrence river; cost of sewers, \$75,000.

**PRESTON**, Waterloo co.:  $10\frac{1}{2}$  miles of sewers for domestic sewage only; sewage treated in septic tank and sand filter; cost of sewers, \$72,200; cost of disposal plant, \$16,000.

**RAINY RIVER**, Rainy River dist.:  $2\frac{1}{2}$  miles of sewers for domestic sewage only, with 12 in. outlet; sewage treated in septic tanks; cost of sewers, \$15,000; cost of disposal plant, \$11,000.





*Commission of Conservation*

Stratford Sewage Disposal Works - Sprinkling Filters - Summer View



*Commission of Conservation*

Same as Above - Winter View

**RENFREW**, Renfrew co.: 9 miles of sewers for domestic sewage only, with 9 in. to 15 in. outlets into Bonnechère river; cost of sewers, \$39,721.

**ST. CATHARINES**, Lincoln co.: 35 miles of combined street and domestic sewers, with 12 in. to 30 in. outlets into old Welland canal; cost of sewers, \$350,000.

**ST. THOMAS**, Elgin co.: Total of 24½ miles of sewers for combined domestic sewage and street drainage which are divided as follows: 2 m. of 36 in. elliptical, brick; ½ m. of 24 in. circular, glazed tile; 3½ m. of 15 in. and 18 in. circular, glazed tile; 8 m. of 10 in. and 12 in. circular, glazed tile; 11 m. of 8 in. circular, glazed tile. The sewage is treated in septic tanks. Cost of disposal plant, \$20,000.

**SANDWICH**, Essex co.: Partly sewerized: 6½ miles of combined street and domestic sewers, with 36 in. and 48 in. outlets into Detroit river; cost of sewers, \$122,948.

**SARNIA**, Lambton co.: Combined street and domestic sewers, with 24 in. to 56 in. outlets into St. Clair river; cost of sewers, \$322,478.

**GAULT STE. MARIE**, Algoma dist.: 23½ miles of sewers, part carrying combined street drainage and domestic sewage, part domestic only, with 8 in. to 66 in. outlets into St. Mary river.

**SIMCOE**, Norfolk co.: 4½ miles of sewers for domestic sewage only; sewage treated in filter beds, Imhoff system; cost of sewers, \$27,265; cost of disposal plant, \$34,388.

**SMITHS FALLS**, Lanark co.: 11½ miles of sewers, part carrying combined street drainage and domestic sewage, part carrying these separately, with 10 in. to 16 in. outlets into Rideau river; cost of sewers, \$175,000.

**STEELTON**, Algoma dist.: Partly sewerized; 6 miles of sewers for domestic sewage only, with outlet into St. Mary river; cost of sewers, \$82,000.

**STRATFORD**, Perth co.: Total of 34½ miles of sewers, part carrying combined street drainage and domestic sewage, part carrying these separately. The sewers may be divided as follows: 2½ m. of 36 in. and 48 in. circular, concrete; 2½ m. of 18 in. to 24 in. circular, vitrified pipe; 4 m. of 12 in. and 15 in. circular, vitrified pipe; 24½ m. of 9 in. and 1½ m. of 8 in. circular, vitrified pipe. The sewage is treated in septic tanks and sprinkling filters. Cost of sewers \$50,000; cost of disposal plant, \$60,000.

**STURGEON FALLS**, Nipissing dist. - 4 miles of sewers for domestic sewage only, with 12 in. and 18 in. outlets into Sturgeon river; cost of sewers, \$52,576.

**SUDBURY**, Sudbury dist. - 10½ miles of sewers carrying domestic sewage and storm water separately, with 9 in. to 20 in. outlets into Junction creek; sedimentation tanks to be constructed; cost of sewers, \$116,798.

**THESSALON**, Algoma dist. - ½ mile of combined street and domestic sewers, with 10 in. outlet into Thessalon river; cost of sewers, \$4,094.

**THOROLD**, Welland co. - Partly sewerized; 4 miles of separate street and domestic sewers, with 14 in. outlet into old Welland canal.

**TILBURY**, Kent co. - 1½ miles of sewers for street drainage only; cost of sewers, \$5,000.

**TILLSONBURG**, Oxford co. - 10 miles of sewers for domestic sewage only; sewage treated in septic tank; cost of sewers, \$20,000; cost of disposal plant, \$2,500.

**TORONTO**, York co. - Total of 480 miles of combined street and domestic sewers of which the larger ones may be divided as follows: 11 m. of 6½ ft. to 9½ ft. circular; 8 m. of 4½ ft. to 6 ft. circular; 6 m. of 2½ ft. to 4 ft. circular; 3½ m. of 6 ft. × 6 ft. to 10½ ft. × 10½ ft. culvert type; 1 m. of 4½ ft. × 6½ ft. to 6½ ft. × 7½ ft. culvert type; 9½ m. of 2 ft. × 3 ft. to 5 ft. × 6½ ft. culvert type; 1½ m. of 4 ft. × 6 ft. to 4½ ft. × 6½ ft. egg-shaped; 3½ m. of 3 ft. × 4½ ft. to 3½ ft. × 5½ ft. egg-shaped; 2½ m. of 2 ft. × 3 ft. to 2½ ft. × 4½ ft. egg-shaped. Both concrete and brick are used in the construction of these sewers, the sanitary sewers generally having a vitrified wearing surface of either glazed tile or brick. For sewers carrying storm water only, concrete construction is considered as efficient as any other and cheaper. The larger sewers above enumerated give a total of 46½ miles, the remaining 43.3 miles are of 12 in. to 24 in. tile pipe. The sewage is treated by chlorination and in sedimentation tanks. Cost of disposal plant and trunk sewers in connection with it, \$2,792,000.

**NORTH TORONTO SYSTEM**: In addition to the above, the North Toronto portion of the city is partly sewerized with 33½ miles of sewers carrying domestic sewage and roof water only. The sewage is treated by a modified Imhoff tank method. Cost of sewers, \$250,000; cost of disposal plant, \$44,000. A new sewerage system is under construction for this district.

**TRENTON**, Hastings co.: Partly sewered.  $\frac{1}{2}$  mile of sewers for domestic sewage only; sewage treated in sedimentation and septic tanks. Cost of sewers, \$8,000; cost of disposal plant, \$4,000. Addition contemplated.

**WALKERTON**, Bruce co.: 4 miles of combined street and domestic sewers with 18 in. outlets into Saugeen river. Cost of sewers, \$12,500.

**WALKERVILLE**, Essex co.:  $1\frac{1}{2}$  miles of combined street and domestic sewers, with 24 in. to 60 in. outlets into Diefenbach river. Cost of sewers, \$150,000.

**WATERLOO**, Waterloo co.:  $1\frac{1}{2}$  miles of sewers for domestic sewage only, sewage treated in septic tanks and filter beds. Cost of sewers, \$71,450; cost of disposal plant, \$13,000.

**WELLAND**, Welland co.: 17 miles of combined street and domestic sewers, with 10 in. to 48 in. outlets into Welland river. Cost of sewers, \$1,311,375.

**WESTON**, York co.:  $5\frac{1}{2}$  miles of sewers carrying street drainage and domestic sewage separately, except where storm sewers do not yet reach; sewage treated in septic tank and on sprinkling beds. Cost of sewers, \$134,631; cost of disposal plant, \$21,287.

**WIARTON**, Bruce co.:  $1\frac{1}{2}$  miles of combined street and domestic sewers; sewage treated in septic tank; cost of sewers, \$13,300.

**WINDSOR**, Essex co.: 40 miles of combined street and domestic sewers, with 13 outlets from 24 in. to 7 ft.  $\times$  4 ft. into Detroit river; cost of sewers, \$1,000,000.

**WINGHAM**, Huron co.: 4 miles of sewers for domestic sewage only; sewage treated in septic tank; cost of sewers, \$18,000; cost of disposal plant, \$2,000.

**WOODSTOCK**, Oxford co.:  $21\frac{1}{2}$  m. of sanitary sewers, some of which also carry street drainage; these are divided as follows:  $4\frac{1}{2}$  m. of 12 in. to 18 in. glazed tile,  $17\frac{1}{2}$  m. of 6 in. to 10 in. glazed tile. The sewage is treated in septic tanks and filter beds. Cost of sewers, \$128,500; cost of disposal plant, \$8,000. In addition there are  $5\frac{1}{2}$  miles of storm sewers all of cement and of which there are 3 m. ranging from 12 in. to 24 in., and  $2\frac{1}{2}$  m. of 8 in. and 10 in.

## MANITOBA

**BRANDON:** Total of 28½ miles of combined street and domestic sewers which are divided as follows: 1 m. of 38 in. × 34 in. elliptical, concrete; 3 m. of 32 in. × 48 in. elliptical, concrete; ½ m. of 4 ft. circular, vitrified clay; 1½ m. of 15 in. to 27 in. circular, vitrified clay; 10½ m. of 10 in. and 12 in. vitrified clay; 11½ m. of 8 in. vitrified clay; ½ m. of 6 in. and 4 in. vitrified clay. The outlets discharge into Assiniboine river. Cost of sewers, \$326,321.

**CARMAN:** 2½ miles of combined street and domestic sewers, with two 15 in. outlets into Boyne river; cost of sewers, \$26,000.

**DAUPHIN:** 8½ miles of sewers carrying domestic sewage only; sewage treated in septic tanks; cost of sewers, \$83,498; cost of disposal plant, \$75,291.

**GRANDVIEW:** Combined street and domestic sewers with outlet into Valley river; cost of sewers, \$8,000.

**NEEPAWA:** 5 miles of sewers for domestic sewage only, with septic tank treatment and filtration; cost of sewers, \$30,000; cost of disposal plant \$13,000.

**PORTAGE-LA-PRAIRIE:** 14½ miles of sewers for domestic sewage only of which 3 m. are of 12 in. circular, wooden pipe, 3 m. of 10 in. circular, vitrified pipe and the balance of 6 in. and 8 in. vitrified pipe. The sewers discharge into Assiniboine river. Cost of sewers, ejectors, etc., \$236,000.

**ST. BONIFACE:** 27 miles of combined street and domestic sewers, with 2 ft. to 9 ft. outlets into Red river; cost of sewers, \$928,861.

**SELKIRK:** 7½ miles of sewers for combined domestic sewage and street drainage, with 15 in., 30 in. and 36 in. outlets into Red river; cost of sewers, \$90,000.

**SOURIS:** 10 miles of sewers for domestic sewage only; sewage treated in septic tank with filter beds, effluent discharging into Souris river; cost of sewers, \$85,000; cost of disposal plant, \$28,000.

## SEWERAGE SYSTEMS OF MANITOBA

**WINNIPEG:** Total of 253 miles of combined street and domestic sewer which are divided as follows: 1 mi. of 4 ft. x 4 ft. x 11 ft. x 9 ft. egg-shaped, concrete; 107 mi. of 6 ft. x 6 ft. x 11 ft. x 9 ft. egg-shaped concrete; 73 mi. of 4 ft. x 4 ft. x 8 ft. x 11 ft. egg-shaped concrete; 11 mi. of 2 ft. x 4 ft. x 7 ft. x 11 ft. brick; 10 mi. of 2 ft. x 4 ft. x 6 ft. x 11 ft. wooden; 1 mi. of 6 ft. x 6 ft. circular concrete; 243 mi. of 2 ft. to 3 ft. circular concrete; 90 mi. of 15 in. to 22 in. vitrified pipe; 1067 ft. of 12 in. vitrified pipe; 7 mi. of 9 in. vitrified pipe. There are 11 outlets emptying into Red river and 9 into Assiniboine river. Cost of sewers, \$4,020,000.

## SASKATCHEWAN

**BATTLEFORD:** 5 miles of sewers for domestic sewage only; sewage treated by a combined sedimentation and septic system with filtration beds; cost of sewers, \$40,000; cost of disposal plant, \$10,000.

**CANORA:** Sewerage system under construction;  $3\frac{1}{2}$  miles of sewers, sewage to be treated; estimated cost of sewers, \$60,000; estimated cost of disposal plant, \$45,000.

**ESTEVAN:** 4 miles of combined street and domestic sewers; sewage treated in Imhoff tanks, spraying filters and sludge beds; cost of sewers, \$75,000; cost of disposal plant, \$30,000.

**INDIAN HEAD:**  $4\frac{1}{2}$  miles of combined street and domestic sewers; sewage treated in septic tank and filter beds; cost of sewers, \$54,000; cost of disposal plant, \$15,000.

**MAPLE CREEK:**  $5\frac{1}{2}$  miles of sewers for domestic sewage only; sewage treated by Stoddart system; cost of sewers, \$66,000; cost of disposal plant, \$16,000.

**MELFORT:** Partly sewerized; 2 miles of sewers for domestic sewage only; sewage treated by filtration; total cost of sewers and disposal plant, \$38,465.

**MELVILLE:** Proposed system to cost \$200,000.

**MOOSE JAW:** 37 miles of separate sanitary sewers all circular and of tile, divided as follows:  $1\frac{1}{2}$  m. of 24 in.;  $3\frac{1}{2}$  m. of 12 in. to 18 in.;  $5\frac{1}{4}$  m. of 10 in. and  $26\frac{1}{2}$  m. of 8 in. The sewage is treated in sedimentation tanks and filter beds, Stoddart system. Cost of sanitary sewers, \$550,000; cost of disposal plant, \$195,000. In addition there are  $7\frac{1}{2}$  miles of storm sewers divided as follows:  $\frac{1}{2}$  m. of 24 in. and 30 in. circular, vitrified clay blocks; 1 m. of 15 in. to 20 in. circular, tile; 6 m. of 8 in. to 12 in. circular, tile.

**NORTH BATTLEFORD:** 9 miles of sewers carrying street drainage and domestic sewage separately; sewage treated in sedimentation tanks, spraying filters and sludge beds; cost of sewers, \$160,000; cost of disposal plant, \$20,000.



Morse Sewage Disposal Works Filters



**PRINCE ALBERT:** 27 miles of sewers, carrying street drainage and domestic sewage separately; with 4½ ft. × 3 ft. outlet into North Saskatchewan river; cost of sewers, \$450,000.

**REGINA:** 58 miles of sewers, part carrying combined street drainage and domestic sewage, part carrying these separately; 72 in. street sewer discharges directly into Wascana creek; domestic sewage treated by sedimentation, filtration and chlorinating, effluent discharged into Wascana creek; cost of sewers, \$1,331,923; cost of disposal plant, \$230,085.

**SASKATOON:** 49½ miles of sewers, carrying street drainage and domestic sewage separately, with 10 in. to 16 in. outlets into South Saskatchewan river; cost of sewers, \$1,317,874.

**SWIFT CURRENT:** 10½ miles of sewers carrying domestic sewage only; sewage treated by sedimentation and filtration; cost of sewers, \$250,000; cost of disposal plant, \$22,000.

**WATROUS:** Sewerage system in construction.

**WEYBURN:** 6½ miles of sewers carrying domestic sewage only, sewage treated in sedimentation tank and chlorinated, effluent discharged through a 15 in. outlet into Souris river; cost of sewers, \$95,000; cost of disposal plant, \$20,000.

**YORKTON:** 9½ miles of sewers, carrying domestic sewage only; sewage treated in sedimentation basins and Stoddart trays; cost of sewers, \$98,700; cost of disposal plant, \$28,400.

## ALBERTA

**ATHABASKA:** Proposed system to cost \$80,000.

**BANFF:** 7 miles of combined street and domestic sewers with outlet into Bow river; cost of sewers, \$120,000

**BANKHEAD:** 1½ miles of sewers, carrying domestic sewage only, with a 16 in. outlet into Cascade river; cost of sewers, \$14,954

**BASSANO:** 4 miles of sewers for combined domestic sewage and street drainage; disposal plant under construction; cost of sewers, \$50,000; estimated cost of disposal plant, \$20,000.

**CALGARY:** 194 miles of combined street and domestic sewers, which may be divided as follows: 1½ m. of 4 ft. × 2½ ft. oval, brick and vitrified sectional tile; 3 m. of 4½ ft. and 6 ft. circular, concrete; 2 m. of 3½ ft. × 3 ft. to 4½ ft. × 3½ ft. horseshoe and oval, concrete; 4½ m. of 3 ft. circular, concrete; 12½ m. of 24 in. and 30 in., 25½ m. of 15 in. to 20 in., 74½ m. of 10 in. and 12 in., 70 m. of 8 in. and 9 in. circular vitrified tile; ½ m. of 10 in. to 16 in. steel pipe. These sewers empty through a 6 ft. outlet into the Bow river. Cost of sewers, \$3,000,000. In addition there are 6 miles of street drains, divided as follows: 1 m. of 18 in. and 24 in. circular, concrete; 3½ m. of 20 in. and 30 in., 1½ m. of 12 in. to 18 in. circular vitrified tile.

**CAMROSE:** 3 miles of sewers for domestic sewage only, with Owen system contact bed treatment; total cost of sewers and disposal plant, \$46,000.

**EDMONTON:** Total of 141 miles of sewers, part carrying combined street drainage and domestic sewage, part carrying these separately. They may be divided as follows: 3½ m. of 6½ ft. to 10½ ft. circular, concrete; 10½ m. of 44 in. to 72 in. circular, concrete; 4 m. of 27 in. to 36 in. circular, vitrified segment tile; 6½ m. of 22 in. and 24 in. circular, vitrified tile; 18 m. of 15 in. to 20 in. circular, vitrified tile; 98 m. of 8 in. to 12 in. vitrified tile; ½ m. of 6 in. vitrified tile. The outlets discharge into the North Saskatchewan river, part of the sewage being treated in a septic tank. Cost of sewers, \$3,890,363.

**GLEICHEN:** 1 mile of sewers for domestic sewage only, with septic tank treatment; cost of sewers, \$5,800; cost of disposal plant, \$300.

**HIGH RIVER:** Sewerage system under construction—proposed system for domestic sewage only, with disposal plant.

**LETHBRIDGE:** 29 miles of separate sanitary sewers and 27 m. of storm sewers. The sanitary sewers are divided as follows:  $\frac{1}{4}$  m. of 18 in.  $\times$  18 in. wooden box, outfall sewer;  $1\frac{1}{2}$  m. of 24 in. vitrified pipe, 3 m. of 15 in. to 22 in. vitrified pipe;  $8\frac{1}{2}$  m. of 10 in. and 12 in. vitrified pipe;  $15\frac{1}{2}$  m. of 8 in. vitrified pipe. The storm sewers range from 15 in. to 30 in. The sewage is treated in sedimentation tanks, sprinkling filters and chlorinated, the outlets discharging into Belly river; cost of sewers, \$275,203; cost of disposal plant, \$90,000.

**MACLEOD:** 6 miles of sewers for combined domestic sewage and street drainage, with 18 in. outlet into Oldman river; cost of sewers, \$40,000.

**MEDICINE HAT:** 27 miles of separate sanitary sewers and 8 miles of storm sewers. The sanitary sewers are divided as follows:  $2\frac{3}{4}$  m. of 20 in. to 27 in. circular, vitrified clay;  $5\frac{1}{2}$  m. of 10 in. to 18 in. circular, vitrified clay and concrete;  $18\frac{1}{2}$  m. of 8 in. circular, vitrified clay. The storm sewers are as follows:  $\frac{1}{2}$  m. of 30 in. and 36 in. circular, concrete;  $2\frac{1}{2}$  m. of 20 in. and 24 in. circular, vitrified clay; 5 m. of 10 in. to 18 in. circular vitrified clay. The outlets discharge into the South Saskatchewan river; cost of sewers, \$300,000.

**RED DEER:** 5 miles of combined street and domestic sewers, with 18 in. outlets into Red Deer river; cost of sewers, \$70,157.

**VEGREVILLE:** 2 miles of sewers carrying domestic sewage only; sewage treated by contact filter, with 15 in. outlet into Vermilion river; cost of sewers, \$20,000; cost of disposal plant, \$5,000.

**WETASKIWIN:** 10 miles of sewers for combined street drainage and domestic sewage, sewage treated on live earth beds, the effluent being disinfected.

## BRITISH COLUMBIA

**CHILLIWACK:** 3 miles of combined street and domestic sewers; sewage is treated in filters and separators; cost of sewers and disposal plant \$35,000.

**CLAYBURN:**  $\frac{1}{2}$  mile of sewers for domestic sewage only; sewage treated in septic tank; cost of sewers, \$2,300; cost of disposal plant, \$700.

**CRANBROOK:**  $7\frac{1}{2}$  miles of sewers for domestic sewage only; sewage treated by filtration; cost of sewers, \$98,000; cost of disposal plant, \$19,000.

**FERNIE:**  $7\frac{1}{2}$  miles of sewers carrying domestic sewage and street drainage separately; sewage treated in septic tank; cost of sewers, \$87,000; cost of disposal plant, \$7,372.

**KAMLOOPS:** 6 miles of sewers for domestic sewage only; sewage treated in septic tanks; total cost of sewers and disposal plant, \$60,000.

**KELOWNA:** Partly sewerized; 1 mile of sewers for domestic sewage only; sewage treated in Imhoff tank and filter; cost of sewers, \$79,000; cost of disposal plant, \$17,000.

**LADYSMITH:** 10 miles of sewers for domestic sewage only, with 10 in. outlets into Oyster harbour; cost of sewers, \$65,000.

**NANAIMO:**  $10\frac{1}{2}$  miles of sewers for domestic sewage only, with three 12 in. outlets into harbour; cost of sewers, \$188,426.

**NELSON:**  $9\frac{1}{2}$  miles of combined street and domestic sewers, with 8 in. to 18 in. outlets into Kootenay river; cost of sewers, \$50,000.

**NEW WESTMINSTER:**  $49\frac{1}{2}$  miles of sewers, part carrying combined street drainage and domestic sewage, part carrying these separately; 12 in. to 36 in. outlets into Fraser river; cost of sewers, \$400,000; extensions and improvements to sewerage system, amounting to \$575,000, under way.

**NORTH VANCOUVER:** 30 miles of sewers carrying street drainage and domestic sewage separately, with 24 in. outlets into Burrard inlet; cost of sewers, \$435,000.

**PRINCE RUPERT:** Part of city temporarily sewered; 3 miles of sewers for domestic sewage only, with outlet into the Pacific ocean; cost of sewers, \$40,000.

**REVELSTOKE:** 9 miles of combined street and domestic sewers with 18 in. outlets into Columbia and Illecillewaet rivers; cost of sewers, \$112,000.

**VANCOUVER:** 200 miles of sewers, the greater part carrying combined street and domestic sewage, with outlets into the Pacific. They range from 6 in. to 84 in. circular section and horseshoe section equivalent to 10½ ft. circular, the material used being vitrified pipe, cement pipe, concrete, with or without brick or vitrified tile lining. Approximate cost of sewers, \$4,500,000.

**VERNON:** 7 miles of sewers for domestic sewage only; sewage treated in septic tanks and filters; cost of sewers, \$94,500; cost of disposal plant, \$39,500; storm drainage recently installed, cost, \$58,000.

**VICTORIA:** Total of 110 miles of sewers for domestic sewage only, of which the larger ones may be divided as follows: 2½ m. of 2 ft. × 3 ft. to 2½ ft. × 4½ ft. egg-shaped, brick and concrete; 2½ m. of 27 in. to 36 in. concrete; 1½ m. of 20 in. to 24 in. vitrified pipe; 133 feet of 36 in. steel pipe. The outlets discharge into the Pacific, cost of sewers, \$2,000,000.

## COMMISSION OF CONSERVATION

## SEWERAGE SYSTEMS IN CANADA

(In this compilation, the items, which it was impossible to obtain from the municipalities, have been estimated and included.)

## SEWERS

PROVINCE	No. of Systems		Total No. of Miles	Total Cost (dollars)	No. of Systems Where: Not Treated	Treated	Cost of Treatment Plants (dollars)
	Combined	Separate					
Nova Scotia	16	4	153	1,716,590	20		
Prince Edward Island		2	28	175,000	2		
New Brunswick	5	5	123	1,101,062	10		
Quebec	60	34	829	20,861,531	86	12	369,000
Ontario	54	41	1,670	24,195,834	60	35	1,774,287
Manitoba	5	4	335	6,084,736	6	3	116,291
Saskatchewan	3	12	247	3,623,962	3	12	604,485
Alberta	2	2	407	7,896,477	8	6	131,300
British Columbia	5	31	441	8,849,226	9	7	113,572
Canada	155	124	4,223	74,504,418	204	75	3,718,935

